On Naming and Knowing Plants: Botanical Latin from Pliny the Elder to Otto Brunfels’ 1530 Herbarum Vivae Eicones

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Abstract

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In 1530, a German physician named Otto Brunfels published an herbal entitled Herbarum Vivae Eicones (Living Images of Herbs). In it, he planned to map the names of medicinal herbs known in and native to Germany onto their Greek and Latin names. Brunfels’ audience included fellow physicians and in order to assist with the identification of the herbs in his book, his publisher employed a woodcut artist to produce realistic images of them, a novelty in the genre of printed herbals. Over time, Brunfels’ work was superseded by 16th-century botanists and his legacy was relegated to the illustrations of his herbs, while his contributions to the naming and description of them were dismissed as unoriginal. However, a closer examination reveals Brunfels’ herbal as a transitional text bridging the gap between the herbal tradition and the development of the science of botany. In addition to citing Pliny the Elder as his primary authoritative influence, Brunfels also references a number of 15th-century Italian humanist scholars who were neither botanists nor physicians, but who were known for their critiques of the early printed editions of Pliny’s Historia Naturalis and even of Pliny himself as a natural history authority. Thus, Brunfels’ herbal is tied to the manuscript and printing history of Pliny and to humanist attempts to correct and stabilize his text. Moreover, in the course of his work, Brunfels encountered a number of herbs that were known to him, but whose Latin and Greek nomenclature he could not accurately identify. As a result, he was forced to describe in his own words, in original Latin, these herbae nudae with German nomenclature but with unknown Greek and Latin names. In addition, Brunfels encounters considerable disagreement among the ancient authorities about the naming
and classification of other herbs and he is again forced to insert his own opinion, which he calls *iudicium nostrum*. I argue that Brunfels’ original Latin is a very early example of what would eventually become formal botanical Latin. Brunfels’ herbal is situated in such a way that it looks backward whilst simultaneously looking forward. It is an object of reception, appropriating terminology and methods from Pliny the Elder and from the humanist scholars who debated the quality of the printed editions of his work and the accuracy of the information provided in it. It is simultaneously the subject of reception, demonstrating a halting, hesitant vocabulary and style of Latinity that would eventually come to be identified with botany as a discipline. Chapter 1 addresses Pliny’s ideas of what constitutes knowledge (*cognitio*) about plants in the *Historia Naturalis*, via his arguments against improper nomenclature (*nomina nuda*) and the alignment of herbal medicine with magic (*magicae herbae*). Pliny’s advocacy for proper methodology (experience over book learning) is also examined. Chapter 2 turns to the manuscript tradition of Pliny’s text and the first two printed editions, in 1469 and 1470, which were corrupt and resulted in an unstable, inaccurate text. In Chapter 3, the reactions of the Italian humanists to these early printed editions are considered, along with the transition from critiques of the editors and printers to debates about inaccuracies that can be traced to Pliny himself. Chapter 4 turns to Otto Brunfels and traces his reliance on Pliny as well as on the Italian humanists, especially Ermolao Barbaro, who claimed to “heal” the errors in Pliny and stabilized his text. Brunfels’ original descriptions of herbs are also discussed. In the conclusion, Brunfels’ work is compared with that of botanists who postdated him, including Leonhard Fuchs, Kaspar Bauhin, and Karl Linnaeus.
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ad matrem, quae vivere usque ad studiorum finem tantum voluit.
List of Abbreviations

CB  Critica Botanica (Linnaeus, 1737)
CP  De Causis Plantarum (Theophrastus)
DOGO  De Optime Genere Oratorum (Cicero)
FB  Fundamenta Botanica (Linnaeus, 1736)
GP  Genera Plantarum (Linnaeus, 1743)
HN  Historia Naturalis (Pliny the Elder)
HP  Historia Plantarum (Theophrastus)
IBC  International Botanical Congress
ICBN  International Code of Botanical Nomenclature (Obsolete)
ICN  International Code of Nomenclature for algae, fungi, and plants
ONF  On the Natural Faculties (Galen)
SP  Species Plantarum (Linnaeus, 1753)
List of Manuscripts

(Partial) list of manuscripts of Pliny the Elder’s *Historia Naturalis*. Adapted from L.D. Reynolds (1983); Reeve (2007); and from Roger Pearse’s 2013 list, itself derived from Reynolds: https://www.roger-pearse.com/weblog/2013/06/22/the-manuscripts-of-pliny-the-elers-natural-history/. I have added in two Petrarch manuscripts.

### Manuscripts Owned and Annotated by Petrarch

**P1 (6802):** Paris, Bibliothèque Nationale de France, MS lat. 6802. 14th c. Selections from all 37 books, with the *Vita Plinii* of Suetonius at the beginning. Quite possibly the reference and primary source for the *editio princeps* of the *Historia Naturalis* in 1469, printed in Venice by Johannes de Spira.

**P2 (6805):** Paris, Bibliothèque Nationale de France, MS lat. 6805. 14th c. Contains selections from all 37 books, and has the *Vita Plinii* of Suetonius at the end. Also thought to have been a source for the *editio princeps*.

### Vetustiores

**M (Codex Moneus):**

St. Paul im Lavanttal, Stiftsbibliothek, MS 3.1 (25.2.36; xxv.a.3) (*CLA* x.1455). 5th c. Palimpsest discovered in 1853, containing portions of books 11-15, written in 5th c. uncial script. This was included in Sillig’s 1855 edition, in volume 6.

**N:** Rome, Biblioteca Nazionale, MS Sessor. 55 (*CLA* iv.421). 5th c. uncial script. Palimpsest with passages from books 23 and 25.

**O:** Vienna, Österreichische Nationalbibliothek, MS 1a (*CLA* x.1470). early 5th c. uncial script. 7 leaves, later used for bindings, containing portions of books 33 and 34.

**P:** Paris, Bibliothèque Nationale de France, MS lat. 9378, folio 26 (*CLA* v.575). late 6th c. 1 folio from book 18.

**Pal. Chat.:**

Autun, Bibliothèque Municipale, MS 24 + Paris, Musée des Archives Nationales, MS lat. 1629 (*CLA* vi.725). 5th c. uncial script. Palimpsest with sections of books 8 and 9.


B (Bamberg):

Bamberg, Staatsbibliothek Bamberg, Class. 42 (M.v.10). First third of 9th c. Copied in the palace scriptorium of Louis the Pious. Books 32-37. The only extant manuscript to preserve the final lines of Book 37.

Recentiores (ordo recentiorum)


F: Leiden, Bibliotheek der Rijksuniversiteit, Lipsius 7. first half of 9th c. The scribe was from Luxeil, and may have been working with another scribe from Murbach. Books 1-37. Possibly copied from D, G, V.


E²: descendant of E in which some of the lacunae in E, caused by missing leaves, were filled in. In particular, E² fills in 6.148-52.
Descendants of E:

i.  h = Berlin, Staatsbibliothek zu Berlin, Ms. Hamilton 517. 11th c.
ii. X = Luxembourg, Orval Abbey, MS 138. 12th c.
iii. Leiden, Bibliotheek der Rijksuniversiteit, Voss. Lat. Q.43. 12th c., from Orleans.
iv. n = Montpellier, Bibliothèque Universitaire Historique de Médecine, MS 473, 12th c., from Clairvaux; mainly medical excerpts.

Others may have been derived from E, as they are very close to it:


There are still yet others with various connections to E:

viii. e = Paris, Bibliothèque Nationale de France, MS lat. 6796A. 12th c. A faithful copy of E.

ix.  a = Vienna, Österreichische Nationalbibliothek, MS 234. 12th c. Not derived from E, but from its ancestor.

x.  d = Paris, Bibliothèque Nationale de France, MS lat. 6797. Third quarter of 12th century, Northern France, probably St. Amand. Contains a substantial amount of the older tradition.
Introduction

In 1743, Karl Linnaeus (1707-1778), while discussing his work on the formalization of the classification of plants, defined a botanist as someone who is able to classify and name plants by organizing them according to common features (Genera Plantarum 1743: iii):

Botanicus est ille, qui Vegetabilia similia similibus, et distincta distinctis Nominibus, cuicunque intelligibilibus, noscit (2) nominare.

The botanist is someone who knows how to assign similar names to similar plants, and distinct names to distinct plants. These names must be intelligible to everyone.

Embedded in this statement is the concept of “universal intelligibility”, the idea that when one is describing, classifying, and naming plants, it is possible to be understood by anyone.\(^1\) Even in the early 20th century, many botanists still assumed that the formalization of botanical Latin and nomenclature would render genera and species from the plant kingdom knowable to individuals the world over. However, by the mid-20th century, proficiency in Latin was an anomaly rather than a given and the vast corpus of untranslated botanical Latin literature, dating back centuries, had become unintelligible to many botanists.

Modern botanical Latin is not spoken and in most cases is used only because the International Code of Botanical Nomenclature (ICBN) required it until 2011. Prior to the first ICBN, adopted in Cambridge in 1935 at the first International Botanical Congress, the use of Latin in botany had not been required for publication, although it was readily used. In 1935, a rule for publication was instituted that required that the scientific diagnosis of a new species be composed in Latin. Instantaneously, botanical Latin became a necessary tool for communication

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\(^1\) The use of *cuicunque* could certainly be taken as “to anyone trained in the field of botany” rather than “to any one person on the planet”. However, I do not think that this is Linnaeus’ point, nor was it Pliny the Elder’s, and nor has it been the general rule in botany since Linnaeus.
between botanists around the world. For European botanists up through the 19th century, Latin was the *lingua franca*, the language which scholars were expected to use in correspondence and in their published works. But for the modern botanist, this has not been the case for a long time, partially because of the waning of Latin as a common language, but also because of the many botanists whose native languages have little or nothing to do with Latin. At the same time, the vocabulary of botany has become more complex and less accessible to laypeople.

After 1935, fewer and fewer modern botanists knew Latin well enough to compose and read formal botanical diagnoses. As a result, examples of botanical Latin from the 20th century and later tend to be simplistic in both grammar and syntax, with highly technical vocabulary. This was the context in which William Stearn published *Botanical Latin* in 1966, a manual that explained for botanists the long forgotten origins of their “international” code of communication and, crucially, how to use it. Stearn’s monograph is aimed at botanists with little to no knowledge of classical Latin, which he claims differs from botanical Latin in the latter’s need for “precision and economy in words.” Stearn’s project does not involve extensive analysis of the origins of botanical Latin. Rather, his purpose is to explain the basics of the grammar and syntax of the language to non-Latinists, along with the idiosyncrasies of scientific descriptions of plant species, so that botanists can read and understand not only modern descriptions but older ones as well. A large proportion of the text is focused on the language of botany and it served for decades as the definitive guide for reading and composing formal botanical diagnoses for

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2 McNeill 1997: 753. See the entire article for an analysis of the modern issues with botanical Latin and a brief summary of some of the arguments in support of retaining Latin diagnoses.


4 Stearn 1966: 3.
publication, in accordance with the *ICBN*.\(^5\)

However, in the last few decades of the 20th century the *ICBN*’s Latin requirement for diagnoses was heavily debated.\(^6\) Finally, in 2011, at the XVIII International Botanical Congress in Melbourne, the decision was made to no longer require for publication that technical, botanical diagnoses of new organisms be written in Latin. The result of the Melbourne Congress was a new *International Code of Nomenclature for algae, fungi, and plants (ICN)*, put into effect on January 1, 2012. Known also as the Melbourne Code, the *ICN* dictates that the names of organisms must still be devised in Latin and must still adhere to Linnaeus’ binary rules of nomenclature.\(^7\) However, diagnoses may now be published in either Latin or English. Given the waning of knowledge of Latin, this means that centuries of botanical Latin diagnoses and

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\(^5\) Stearn’s text is monolithic. The only real contender is Baranov, A. 1971. *Basic Latin for Plant Taxonomists*. Lehre [Liechtenstein]: J. Cramer. More broadly, Epstein, Spivak and Sprague’s 2019 *The Latin of Science* (Bolchazy-Carducci Publishers) provides to readers scientific passages from antiquity to the Renaissance, along with commentary, vocabulary, and syntax notes and is intended as a reader for intermediate students of Latin. Interestingly, botany is not one of the scientific categories of the book, although medicine is.

\(^6\) Those in favor of retaining the Latin requirement included Filgueiras (1997) and Kabuye (1990). In favor of replacing it with English were McNeill (1997), Kostermans (1990), and Chaudhri (1991, 1992).

\(^7\) The most up-to-date Code (Shenzhen Code, 2018) may be found here: [https://biocyclopedia.com/index/icbn.php](https://biocyclopedia.com/index/icbn.php). According to this Code, while diagnoses no longer have to be composed in Latin, the names must still be Latinized: “Principle V states that scientific names are to be treated as if they were Latin, regardless of their derivation.” In contrast, the draft of a code from 1996 stated in Article 8.2, “in order to be established, a name of a new taxon must be accompanied by a Latin or English description or diagnosis, or by full and direct reference to a previously published Latin or English description or diagnosis…” (*Draft BioCode*, Greuter et al., 1996; Hawksworth et al., 1996). The 2006 Vienna Code states, e.g., “Article 36.1. On or after 1 January 1935 a name of a new taxon (algal and all fossil taxa excepted) must, in order to be validly published, be accompanied by a Latin description or diagnosis or by a reference to a previously and effectively published Latin description or diagnosis.”
descriptions have been relegated to the annals of history. This provided the basis for Elizabeth Short’s 2013 Primer of Botanical Latin, a manual the main point of which is to school botanists in how to read pre-2012 botanical Latin. Recently, in 2020 Ross Bayton published The Gardener’s Botanical, a compilation of botanical names that provides definitions of Latin plant names, along with full-color illustrations. Likewise, Lorraine Harrison’s 2012 Latin for Gardeners promises to provide to its readers an experience similar to traveling overseas with a basic grasp of another language. Such works are not mere novelties. They are necessary to open up the world of botanical Latin to non-specialists, unlocking its secrets and exposing the information hidden in pre-2011 scientific diagnoses and in botanical nomenclature. The publication of such manuals is evidence that “botanical Latin” as a distinct linguistic entity has enduring professional value. Yet there are few, if any, scholarly studies of its origins as a formal, scientific tool that might answer the questions: How did botanical Latin develop and in what

8 There has been some interest expressed by 21st-century botanists in translating and making publicly available this back catalog. At Brazil’s Museu Nacional in Rio de Janeiro, Ruy José Válka Alves, via the Programa de Pós-Graduação em Botânica UFRJ, is involved in a project to develop an online repository of translations of botanical Latin diagnoses. See Alves, R., Da Silva, N., & Pereira, J. (2012). “Latin shaken, not stirred.” Taxon 61: 246-246.


11 Harrison, L. 2012. Latin for Gardeners. Chicago: University of Chicago Press. The publisher’s blurb states that the readers “will realize that having a basic understanding of Latin before trips to the nursery or botanic garden is like possessing some knowledge of French before traveling to Paris; it enriches the whole experience.”

12 Stearn 1966: 11. “The relation of botanical Latin to classical Latin is that of a former dependency which by rigorous economic growth over many years has established traditions and divergencies arising out of its special conditions and history that must be accepted, if need be, by proclaiming it status as a language in its own right.”
context? Why did botany, of all of the scientific disciplines, develop such stringent rules for the expression of its material?\(^\text{13}\) The answers to these questions are complex and each chapter of this dissertation serves to explain one piece of this incredibly detailed puzzle. However, before turning to analysis of the origins and development of botanical Latin, it is necessary to provide an explanation of what it is.

**Botanical Latin**

Despite its obvious deviation from classical and medieval Latin, botanical Latin was never a dead language. It was a constantly evolving, highly technical, structured code, the systematization of which took centuries to develop. By the 20th century, the term “botanical Latin” no longer referred to a natural language, but to a system of recommendations for the composition of formal diagnoses of new genera and species, with a solid history of common syntactical constructions and a highly specialized vocabulary.\(^\text{14}\) The element of botanical Latin that is most well-known is the scientific name, formally known as a *binomial epithet*. This usually consists of a genus name in the nominative, capitalized by convention, and an adjectival species name that modifies the genus name.\(^\text{15}\) The concept of binomial nomenclature is often

\(^{13}\) Binomial nomenclature is not unique to botany. It is the standard format in many scientific disciplines, as is a governing body that produces and enforces rules for nomenclature. There are some fields that do not have such oversight, however. For example, in entomology, while nomenclature follows the two-name format, there is very little oversight, resulting in such insect names as *Ba humbugi* (a land snail from Fiji); *Aha ha* (a species of Australian moth named after the exclamation A. Menke made when he opened a package containing a specimen); *Agra vation* (a carabid beetle); *Eubetia bigaulae* (a tortricid moth, pronounced “You betcha, by golly”); and so on. The only thing these names have in common with botanical names is the binomial format and the fact that each name is unique to exactly one species. There is no attempt to Latinize many of the names, and in some cases, an English word has simply been split into two. Thanks to Prof. Benjamin Fortson for bringing to my attention these examples.

\(^{14}\) This is a more succinct version of Stearn’s definition of botanical Latin. See Stearn 1966: 6-7.

\(^{15}\) For example, *Humulus lupulus*, the formal name for hops.
credited to Karl Linnaeus, but in fact, Linnaeus’ work lay primarily in systematizing binomials and solidifying the processes of naming and describing plants. There was discussion about and deployment of the binomial format in earlier botanists, such as Kaspar Bauhin (1560-1624), Joseph Pitton de Tournefort (1656-1708), Augustus Quirinus Rivinus (1652-1723), and John Ray (1627-1705). The form also appears in the medieval herbal tradition with considerably less formality, but nevertheless serving a similar function, that of distinguishing one species of a plant from another. But the tradition goes back to antiquity. Pliny the Elder makes the transition from discussion of the animal world to that of flora in Book 12 of the *Historia Naturalis* thus (12.1.1):

\[
\textit{Animalium omnium quae nosci potuere naturae generatim membratimque ita se habent.}
\]

The natures of all the animals which can be known reveal themselves thus, both in general and by reference to their parts.

Pliny is speaking of animals, but this is evidence that the concept of specifying and identifying a plant by naming its generic and specific characteristics is not new to the early European botanists. One of the more remarkable features of Pliny’s text, which is consistently overlooked, is his heavy use of binomials,\(^1^6\) although he was inconsistent in his application. Thus, while Linnaeus’ definition of a binomial as a genus name accompanied by an adjectival species name\(^1^7\)

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\(^{16}\) For instance, he discusses *Heracleon siderion* (25.15); *Helleborus candidum* and *nigrum* (25.21); *Hiera botane* (25.59); *Aastaphis agría* (23.13) and many others. It is important to note, however, that Pliny does not use binomials exclusively or even with any consistency. Dioscorides also used binomials in *De Materia Medica*. See Cap. VI, in which he discusses two kinds of Nardus, one from India and the other from Syria; these are *Nardus indica* (νάρδος ἱνδική) and *Nardus syriaca* (νάρδος συριακή). However, Dioscorides wrote in the same period as Pliny, and there is so much overlap between the information in their texts that it is entirely possible that Dioscorides adopted binomials from Pliny.

\(^{17}\) Or a *differentia specifica*, per August Quirinus Rivinus (1652 - 1723). That is, instead of a species name, the genus name would be followed by a diagnostic phrase, which was only required for species >1. See *Introductio Generalis in Rem Herbarium* 1690: 15.
was novel in its specificity and insistence on adherence to its specifications, the actual format was not new.

Pliny also discussed the confusion engendered by nomenclature that applies to more than one plant and the opposite problem, of plants with more than one name. Similarly, in 1737 Linnaeus in his *Critica Botanica* stated that where there is one genus, there shall be one name (*unicum ubi genus, unicum erit nomen*). This is the precursor to Linnaeus’ description of his methodology, found in *Genera Plantarum* (1743: iii):

> Omnia, quae a nobis vere dignosci possunt, dependent a clara Methodo, qua distinguimus similia a dissimilibus. (*Ratio Operis*)

Everything that can truly be distinguished by us depends on a clear method, with which we distinguish things that are alike from things that are unalike.

Linnaeus provides three very important clarifications of his method and project. First, he declares that plants (*vegetabilia*) are “known” to anyone who already knows how to pair similar things with similar and to separate dissimilar things from dissimilar (1743: iii):

> Nota itaque ei Vegetabilia sunt, qui (1) similia similibus conjugere, et dissimilia a dissimilibus separare novit.

Plants are known to anyone who knows how to join similar things to one another, and how to separate dissimilar things from one another.

Linnaeus is promulgating a particular scientific approach that applies to the entire natural world: the individual trained to think about nature in this manner already has the tools to approach the study of plants. Moreover, Linnaeus’ use of the variants of *nosco* and its perfect passive

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18 See *Historia Naturalis* Book 25. This is discussed more fully in Chapter 1.

19 *Critica Botanica* 1737: 2.

20 In this quotation, I take the adjectives *similia* and *dissimilia* as pure substantives standing in for the missing term “things”, not “plants”, because I take Linnaeus’ claim to be about more than just an understanding of how to think about the latter.
participle *notus* is not accidental. He is making clear that the raw material for accurately naming, categorizing, and describing a large number of plants is already available to the botanist: this material is not in need of discovery, but simply organization. This leads to the second clarification, quoted above (1743: iii), namely, that the botanist knows how to assign names to plants that are intelligible to everyone. With this claim, Linnaeus is hinting at a system of nomenclature that is not *ad hoc*, but rather adheres to a prior system of classification: “similar plants with similar names” is a reference to the application of the same genus name to all species that fit the criteria of classification for that genus. Moreover, the criterion that these names be intelligible to all was plausible for Linnaeus and his contemporaries in 18th-century Western Europe. The idea that Latin names might not be clear and meaningful to future scholars was unthinkable, yet that was precisely the fate of botanical Latin in the 20th century.

The third claim that Linnaeus makes, which pertains specifically to this project, concerns precisely this issue of nomenclature (1743: iii):

*Nomina* (3) plantarum sunt *Generica* et (ubi plures species) *Specifica*. Haec debent esse certa et fundata, nec vaga, lubrica vel varie applicabilia; qualia antequam esse possunt necesse est ut sint imposita certis nec vagis generibus (2.6.): his enim vacillantibus vacillant et Nomina, ac per consequens Doctrina Botanici (3).

The names of plants are generic and if there are numerous species, specific. These should be certain and fixed, not variable, inconstant, or applicable to all manner of situations. Before names such as these can be formed, they must be placed on fixed and not variable genera. For if these waver, then their names also waver and as result, so too do the doctrines of the botanist.

Linnaeus is insisting on a 1:1 ratio between plant and name, which is not to be altered. In order to ensure this, it is also necessary that the genera themselves be fixed, categorized, and defined ahead of time. By “genus”, Linnaeus is not referring simply to the taxonomic level between family and species, but to any fixed category used to diagnose a plant to distinguish it from other plants. This is what he is referencing when he declares that the very doctrines of botany will
totter if the genera waver. If we assume a 1:1 ratio between genus and name and then move the goalposts by changing the definition of that genus, along with what constitutes a genus within the system as a whole, then the ratio becomes 1+n:1 and there is no longer any consistency. The development of stable botanical nomenclature is so important that Linnaeus cautions his readers about the deleterious effects of the absence of it in the science of botany. Yet the concept of a unique, fixed, and intelligible binomial epithet is also found in Pliny the Elder, for whom the issues at stake were knowledge of plants and descriptive names in Latin rather than the vernacular. Binomial epithets can therefore be traced back to antiquity, allowing us to ascertain and identify particular definitions and uses of the format.

Moreover, binomial nomenclature does not and did not ever exist in an intellectual vacuum. It was embedded in the broader concept of “botanical Latin”, which can also be traced back to antiquity. Yet where the answer to the question of what constitutes a binomial epithet at particular stages in the history of botanical writing is relatively simple, the answer to the corresponding question of what constitutes botanical Latin at those same stages is far more complex. The slow transition from Pliny’s prose to the modern set of highly formal rules and recommendations for composition is a continuum on which the transitions from point to point are more like fuzzy boundaries. Despite this, it is possible to focus on individual writers and to consider the ways in which they use the Latin language to describe plants, the vocabulary they employ, the grammatical and syntactic constructions they prefer, and how they interact with the ancients and their own, contemporary intellectual milieu. Given all of this, we can draw together the following list of the general features of modern botanical Latin, as seen from roughly
Linnaeus’ time to the abolition in 2011 of the ICBN rule that had long required composition in Latin for the publication of formal diagnoses: 21

a. Binomial epithet, consisting of the genus name in the nominative and an adjectival species name that modifies the genus name;

b. Diagnostic formula consisting of paratactic ablative constructions, in which the adjectives modify the genus name and in which punctuation, especially commas, play a crucial role in deciphering the ablative constructions;

c. Heavy use of prepositions + ablatives to describe geographical distribution;

d. Descriptions using the nominative and simple present active indicative verbs, in which a plant is compared and contrasted with other plants, following certain long-established orders and highly specific terminology, such that the use of said terminology is marked. Punctuation and printing idiosyncrasies such as odd kerning are employed to draw attention to certain terms.

Some of these features appear in Pliny, some in early 16th-century botanical works, and most if not all in later botanists. Thus, while the formal set of rules that constitute modern botanical Latin postdate the Renaissance, the origins of a select few features of botanical Latin go back much further.

This project is therefore about the development of botanical Latin in the Renaissance and its origins in antiquity, specifically in Pliny the Elder’s 1st century CE text, the *Historia Naturalis*. By “development of botanical Latin”, I mean the stabilization both of binomial nomenclature and of the rules and recommendations for the composition of diagnoses. This project therefore tracks the complexities of the relationship between the 15th-century printing history of the *Historia Naturalis*, the Italian humanists who became focused on stabilizing Pliny’s text, and a humble herbal published in 1530 by the German physician Otto Brunfels (c.1488-1534). I will argue that the original Latin composed by Brunfels played a crucial role in

21 See the Appendix for examples of diagnoses that display these features.
the development of what is now known as botanical Latin. Brunfels’ herbal was the first illustrated one to be printed in Europe, placing it at the forefront of the development of botany as a scientific field. Moreover, Brunfels cites Pliny the Elder as his main inspiration and appropriates key elements of Pliny’s work on plants. This fact ties Brunfels to antiquity. In addition, and somewhat surprisingly, Brunfels relies on the work of three Italian humanist scholars, all of whom had written about Pliny: Niccolò Leoniceno (1428-1524), Ermolao Barbaro (1454-1493), and Pandulfo Collenuccio (1444-1504). The historical context in which these scholars critiqued Pliny was a direct result of the printing history of Pliny’s text. The Venetian editio princeps of 1469 was followed in 1470 by a Roman edition, which instigated a heated debate among Italian humanists and a flurry of new editions throughout the 1470s. The fact that Brunfels references and is inspired by these scholars ties him to the 15th-century printing history of Pliny and to a humanist debate regarding the technical aspects of printing, the editing of an ancient authority, and eventually the status of that authority himself.

The development of botanical Latin therefore has an epistemic connection to the stabilization of the text of Pliny’s Historia Naturalis. The reception by the Italian humanists of the first two printed editions, in 1469 and 1470, was significant enough to prompt Otto Brunfels to cite the emenders of Pliny’s text as authorities for his own herbal. By doing so, Brunfels...

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22 There are two scholars whose ideas underpin this concept: 1) Foucault, relying on the concept of an episteme, has argued that pre-Renaissance natural history did not engage in classification, or s’épaississe et s’obscurcisse. (Les Mots et les Choses 1966: 140.) In the Middle Ages, the history of a plant was all-encompassing and included not just physical observations of its stages of growth, but the folklore around it, the medicinal uses attributed to it, its appearance on heraldic devices, etc. The division of these components into separate areas of study came much later. 2) Pamela Smith (1994) argues much the same, and considers “science” to be, not a set historical category, but a “discourse”, a pattern of behavior and methodology that served a particular purpose at a particular place and time. (Smith 1994: 12.) This is a useful approach to the study of the emergence of botany and botanical Latin, which was immediately preceded by a renewed philological interest in Pliny’s Historia Naturalis.
inadvertently linked the development of a scientific discipline with a philological enterprise, transforming the reception of Pliny into something novel yet liminal. The original Latin found in Brunfels’ herbal, long overlooked in favor of its realistic illustrations, functions as a “proto-botanical Latin” and can be positioned in contrast to its modern iteration. It is, however, difficult to pinpoint when botanical Latin began its transformation into its modern form. For instance, Stearn discusses the approximate date when botanical vocabulary turned to specialization:

This rich technical vocabulary, resting on hard-won knowledge gained largely since 1650 and hence unknown to the ancients, sets botanical Latin apart from classical Latin...grammatically, botanical Latin closely follows classical precedent.

Stearn argues that it was with Linnaeus in the 18th century that this more specialized botanical vocabulary developed into “botanical Latin”. It is with this estimation that this project diverges from agreement with Stearn. It may be the case that formal botanical Latin, that is, the partially and fully stabilized forms of botanical Latin that populate the 18th through 20th centuries, are both products of the 18th century. But the seeds of botanical Latin and its infancy go back much further, to the early 16th century and specifically to Otto Brunfels’ much maligned herbal.

**Methodology**

In his work on the Renaissance reception of Virgil, Craig Kallendorf (2020) notes that while it is not clear why Virgil’s poetry remained so popular in the Renaissance, nevertheless its early printing history in Rome was the catalyst for its enduring but sudden popularity. One of the main premises of Kallendorf’s argument, therefore, is that the reception of Virgil is a result of

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23 Sprague (1928: 79) argues that it is the illustrations in Brunfels that rendered his herbal crucial to the development of botany as a science.

24 Stearn 1966: 46.

25 Kallendorf 2020: 1. “Nevertheless, these poems became instant classics almost immediately after their initial publication in Rome and retained that status through the Renaissance.”
the printing history of his works. Kallendorf employs “transformation methodology”, a term borrowed from *Transformations in Antiquity*, a collaborative project that is focused on the development of methods specific to classical reception. *Transformations* can be defined as (Kallendorf 2020: 4):\(^\text{26}\)

...complex processes of change that occur between a *sphere of reference* and a *sphere of reception*. *Transformations* are effected by agents (who do not necessarily have to be human beings) belonging to the *reception sphere*, who, by selecting, adopting, or otherwise incorporating an aspect of the *reference sphere*, modify the *reception sphere* while at the same time construing the *reference sphere*.

In this case, Virgil’s poetry in antiquity is the *sphere of reference*. The 15th-century Italian humanist tradition, in reaction to the early Roman printed editions, constitutes the *sphere of reception*. Kallendorf’s project identifies four Virgilian Renaissance transformations,\(^\text{27}\) the agent of which is “print”, specifically the early printed editions of Virgil. But the form of these transformations is not conditional, or one-way. It is an effect and a cause at the same time and involves reciprocity on the part of the two spheres, reference and reception (Kallendorf 2020: 4):

> Such processes therefore lead to something ‘new’ in two senses, namely to mutually dependent, novel configurations in both the *reference culture* and the *reception culture*. This relationship of interdependency, of reciprocity, will be denoted in what follows by the term *allelopoiesis*, a neologism formed from the Greek *allelon* (mutual, reciprocal) and *poiesis* (creation, generation).

This definition of transformation methodology is focused less on individual people and more on processes, the agents of which may be individuals who engage with what the authors call the

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\(^\text{27}\) These are: the development of Virgilian commentaries; translations of Virgil; the fixing of the Virgilian canon; and censorship. Kallendorf dedicates a full chapter to each of these transformation processes, but see, e.g., Kallendorf 2020: 13-15 for summaries.
reception sphere. This sphere is akin to Foucault’s episteme, though it is more specific, defined by interactions with classical antiquity. By interacting with a reference sphere, the agent is not just a part of the domain of discourse, engaged with discursive formations; they also alter it. By this act, the reference sphere is developed. The authors of *Transformations in Antiquity* therefore have devised the term *allelopoiesis* to describe the reciprocal, biconditional nature of this process of reference and reception, of both influencing and being influenced by one another. This process is never just in one direction, but always assumes, and in fact relies on for its validity, both directions acting as agents simultaneously. “The principle of *allelopoiesis* makes it easier to depart from linear concepts of unidirectional influence.” The authors are looking to formulate a classics-oriented methodology that can handle a long-standing question for Renaissance and book historians, namely, how to understand the relationship between the advent of printing in Europe and the cultural changes that mark the 15th century. Prior to this project, Elizabeth Eisenstein (1979) had also worked on answering this question and had concluded that the printing press was an agent of transformation. “The advent of printing transformed the conditions under which texts were produced, distributed, and consumed.” However, Eisenstein is careful

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28 As described in 1966 in *Les Mots et les Choses: une Archéologie des Sciences Humaines*. Paris: Gallimard. Essentially, an episteme is a series of discursive formations that can be identified in a particular discourse. From a 1972 English translation, the following quote: “Whenever, between objects, types of statement, concepts, or thematic choices, one can define a regularity (an order, correlations, positions and functionings, transformations), we will say, for the sake of convenience, that we are dealing with a discursive formation…the conditions to which the elements of this division…are subjected we shall call the rules of formation.” (1972: 38, *The Archaeology of Knowledge*. New York, Pantheon Books.)

29 Bergemann et al. 2019: 10.

to point out that this was not effected by rejecting the products of manuscript culture that preceded it, but by reproducing them at a much greater pace. For Eisenstein, the *ars artificialiter scribendi* was one of reproduction and duplication.\textsuperscript{31} Thus, transformation methodology is engaged in a reimagining of the relationship between printing and Renaissance humanist culture, broadly speaking, whereby a unidirectional, less creative understanding of the transformation process becomes productive and reciprocal. To quote Kallendorf’s own summary of this process (Kallendorf 2020: 5):

> This reciprocal process - *allelopoietic*, in the terminology of transformation - leads to the construction of both the earlier culture and the one that succeeded it.

This is evocative of Bakhtin’s dialogic principle, adopted by Foucault in his description of the modern episteme, according to which there is a fundamental disunity between text and reader.\textsuperscript{32}

\textsuperscript{31} Eisenstein 1979 1: 168. “Although the relationship between technology and culture in general has been the subject of a growing literature, the more specific relationship between the advent of printing and fifteenth-century cultural change has not yet been explored. This is partly because the very act of drawing connections is not as easy a task as one might think.”

\textsuperscript{32} Bakhtin, M. M. 1981. *The Dialogic Imagination*. Austin: University of Texas Press. The dialogic principle assumes polyphony, which Bakhtin applies to the “interpretation” of a text. He rejects the idea that truth is external to and independent of the text’s polyphony. Rather, there is a “discourse” that can be identified, which consists of the interactions between the many voices and is characterized by fundamental disunity and a lack of harmony. Similarly, the notion of knowable authorial intent is rejected and the relationship between author and reader is seen as fundamentally incompatible and at odds. Likewise, Foucault argues that texts show us what to do with them and that this self-descriptive feature is precisely the reason they need no interpretation. He attributes the disunity between text and reader to the discursive structure of the modern episteme, which is characterized by the presence “not of the possibility of understanding, but of the possibility of a primary misunderstanding.” (Foucault 1970: 326). Foucault utilizes this epistemic rule when he reads historical texts. That it is not our place to attempt to find the meaning of a text or its underlying structure is based in part on our inability to think in the manner the author did, precisely because there is no unified background between the text and the reader. Interpretation then is a *sympathetic* notion, a judgment of the other based on the possibility of sameness and continuity. The progression from one set of rules in an episteme to another Foucault calls *discontinuity*, which is “the fact that within the space of a few years a culture sometimes ceases to think as it had been thinking up to then and begins to think other things in a new way.” (Foucault 1970: 50).
In the case of *alleloloipoiēsis*, this disunity is applied to cultural reception that is based on textual transmission. The idea is not that an earlier culture exists or is literally constructed *post hoc*, but simply that our ability to reconstruct cultural mores and customs is limited by the artifacts to which we have access. Since these artifacts, especially textual artifacts, are rarely if ever transmitted intact and without contact with later agents, it is inevitable that they are altered, thus modifying in turn our conception of the artifact itself and its historical and cultural context.

Transformation theory is inherently interdisciplinary, interacting with numerous fields, in particular reception theory. The authors stress that transformation theory expands on the idea of reciprocity and aims to transcend the “horizon of the recipient.” This means that transformation theory is “retroactive”, looking back to the same degree that it looks forward and taking into consideration every element of the transformation process. Applied to Plinian reception in the 15th century, this means that the manuscript tradition, the editing of the text based on manuscripts, and printing from these materials, all work together as a collective agent in the transformation of Pliny’s text. This process creates both a novel reference culture and a new reception culture. “Whether a text is transmitted as a manuscript or a printed book influences the objects of the reference and the reception spheres.” For Kallendorf, the technology of printing is an agent in the process of transformation with respect to Virgil’s poems. Likewise, it is an

33 Bergemann et al. 2019: 11. Its interdisciplinary nature is “the root of its integrative approach, one that makes it possible to adopt and develop further the tools and methods of various theoretical models such as reception theory, transfer theory, and discourse analysis.”

34 Bergemann et al. 2019: 11. “In transformation analysis, however, the aspect of interdependence is developed further, since transformation is understood here as a retroactive process, and the focus is not solely on the horizon of the recipient. Indeed, the goal is to comprehend the entire process of transformation in all its component parts.”

35 Kallendorf 2020: 5.
agent in the process of transformation with respect to Pliny’s text, and also, by logical
distribution, with respect to the transformation of the science of botany and its expression in the
Latin language.

In the model described by Kallendorf and Bergemann et al., there are subcategories of
transformation. These are appropriation, assimilation, disjunction, encapsulation, reconstruction,
and substitution. Of these, reconstructions are most pertinent to this project, because their
purpose is to reinstate that which has been either lost to history or only partially safeguarded. In
this process, preservation of the ur-text is the only goal, apart from establishing authenticity.
There is no exegetical element, no hermeneutics involved.36 As an example of reconstruction,
Kallendorf provides Maffeo Vegio’s (1407-1458) thirteenth book of the Aeneid,37 which was not
only published repeatedly in the Renaissance, but defended wholeheartedly under the argument
that Virgil had left the epic poem unfinished and had not resolved the ethical issues at the end.38
Vegio’s supplementary book was therefore a reconstruction of Virgil’s text that was presented as
authentic.

Similarly, I will argue that the early printed editions of Pliny’s Historia Naturalis, and in
particular the critical reactions to them, are reconstructions in the transformation model. They
purport to be authentic presentations of Pliny’s original text, despite their reliance on the

36 Kallendorf 2020: 8. “Reconstructions attempt to restore a lost or partly preserved whole; the
interpretive dimension is suppressed, and the reconstructed products present themselves as
authentic.”


38 This was possibly in reaction to the claim in ancient biographies of Virgil that the text was
unfinished at his death, though modern scholars now assume that this only meant that half-lines
would eventually be finished, not that an entire extra book was going to be written.
manuscript tradition and the inevitable scribal errors and alterations it entails. The manuscript tradition also relies on the florilegia, the subject-specific compilations of Pliny that put into digest form such topics as Plinian medicine and herbal remedies. This description of reconstructive transformation also provides a useful bridge between the issues of an episteme, a reception sphere, and a domain of discourse. However, Otto Brunfels’ 1530 herbal is, I argue, also an example of a further transformation subcategory: supplementation. Supplementation is subsumed under reconstruction, and includes the element of interpretation of the reference object. This is crucial to my argument that Brunfels’ herbal is more important to the development of botanical Latin than previously thought, precisely because he does far more than simply regurgitate the opinions of others and in fact inserts his own opinion whenever the cacophony of authoritative voices gets too loud.

In what follows, I will trace the origins of botanical Latin, beginning with Pliny the Elder’s *Historia Naturalis*. I will identify in Chapter 1 the elements of Pliny that are original, distinct, and which directly influenced later botanical writers, including Brunfels. In Chapter 2, I will examine the manuscript tradition of Pliny’s text, including Petrarch’s treatment of it. This chapter will also consider the first two printed editions of Pliny in 1469 and 1470, in order to ascertain both why Pliny was such a popular classical author during the infancy of printing in Italy and the ways in which his work was printed and edited. Chapter 3 will then turn to two distinct phases in the reception of Pliny’s text in printed form. The first involves invectives aimed at the printers and editors themselves, whose work is critiqued by such humanist scholars as Giorgio Merula (c.1430-1494) and Niccolò Perotti (1429-1480). The second phase is marked by the turn to critique of Pliny himself and the veracity of certain of the botanical-medicinal facts

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39 See Kallendorf 2020: 8.
contained in his text. Finally, in Chapter 4, I delve into Otto Brunfels’ herbal, highlighting the ways in which he relied on and appropriated Pliny and the Italian humanists who debated him and his work in the late 15th century.
Chapter 1: Pliny the Elder’s *Historia Naturalis*: Knowability and Nomenclature

*Phyteuma quale sit describere supervacuum habeo, cum sit usus eius tantum ad amatoria.*
(I consider it a waste of time to describe *phyteuma*, because it is used only for the art of love.)
Pliny the Elder, *Historia Naturalis*, 27.99

Introduction

This chapter deals with Books 23 through 30 of Pliny the Elder’s *Historia Naturalis*, dated to roughly 77-79 CE. Books 23 through 29 describe the medicinal uses of plants and the state of the medical profession in Pliny’s time. These seven books are indicative of both Pliny’s personal style and a broader, Roman “scientific” style of description, which would, by the 20th century, become encoded in what is now known as botanical Latin. The last book dealt with in this chapter, Book 30, is not specifically about plants, but rather serves as an ideal place for Pliny to expound on magic within the broader text of the *Historia Naturalis*. There have long been connections between magic and herbs, which is why Pliny discusses the lore surrounding “magical herbs” in Book 25. Given this, his digression on magic in Book 30 is a crucial component in the broader discourse engendered by the interaction between Pliny’s text and the early 16th-century German physician Otto Brunfels’ 1530 *Herbarum Vivae Eicones*, which is the subject of Chapter 4. Any and all features of the *Historia Naturalis* that deal with plant life are reference points for Brunfels’ herbal, which itself played a crucial role in the development of formal botanical Latin. Furthermore, every other element of Pliny’s text, including his discussion about magical herbs, is also an agent in the transformation of the Latin used by Romans to describe plants into modern, formal botanical Latin. The aim of this chapter is not to try to prove

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40 He had finished the first ten books by 77 CE, but the remainder was unfinished at the time of his death in 79 CE, and was published posthumously.
that there is a direct causal relationship between Pliny’s text and modern botanical Latin. Rather, in accordance with transformation methodology, I argue that Pliny’s text serves as a reference sphere for the early Renaissance botanical texts. It is also, itself, a reception sphere, in which it is possible to locate both how Pliny reacts to his botanical predecessors and how he transforms what he has inherited from them.

Two particular points about Pliny are, however, significant for any discussion of the development of botanical Latin. The first is that he made much of the fact that he was the first to write down what he knew about plants in the Latin language. It was important to him to establish Rome and its native tongue as the locus of and a viable communicative tool for the study of nature. The reasons for Pliny’s insistence on the importance of Latin are, of course, different from the reasons why Latin was used by European scientists in the Renaissance. Yet there is a thread that ties the two together, the elements of which are readily identifiable: the ideal of universal intelligibility. The second point is that in his famed rhetorical digression in Book 25, Pliny emphasizes the importance of having a more precise, systematic process for the naming and discovery of plants. Fundamental to this discussion is his concern for lost knowledge about plants. This deficit, he argues, was due to imprecision in naming conventions, with the result that it was difficult to know if one plant name referred to the same plant as another plant name.

41 The famed horti of Rome Pompeii, and Herculaneum were well established by Pliny’s time, with the adoption in many elite households of the peristyle, which allowed for courtyard garden spaces. With the expansion of the empire, and the accompanying land grabs, sprawling villas with gardens also became common. Especially in Rome, where the poor lived in insulae, access to such spaces was reserved for the elite and their households. See Grimal 1940 (Les jardins romains à la fin de la république et aux deux premiers siècles de l’empire) for a classic, comprehensive overview of the style and history of Roman gardens. Grimal uses Book 21 of Pliny as a primary source for reconstructing the kinds of plants one might have found in a Roman garden. For decor, e.g., there might have been Acanthus or Hedera (Ivy); for topiaries, there might be Cynoglossa (Hound’s Tongue), Myrtus (Myrtle), Anthyllis, Ruscus, Cupressus (Cypress), and Platanus (Planetree). For these and other plants, see Grimal 1940: 290ff.
The loss of plant knowledge was also the result of the overall secrecy surrounding plant lore, as well as inferior methods of transmitting knowledge about plants. Pliny was therefore engaged in a project that is twofold: he wished to recover lost knowledge of plants, and to ensure that once regained, this knowledge was properly preserved and passed on to posterity.

Within the framework of transformation methodology and *allellopoiesis*, a reception sphere transforms a reference sphere and vice versa. In this project, I will argue that the reactions of Italian humanists to the earliest printed editions of Pliny’s *Historia Naturalis* form a reception sphere that transforms the reception sphere, namely, Pliny’s text itself. But the process of transformation is a continuum with non-finite limits in both directions. Thus, just as the Renaissance humanists transformed Pliny’s text, the *Historia Naturalis* is itself a reconstruction of other ancient writers. It is therefore an *allellopoietic* transformation of the earlier natural history sources with which Pliny interacted and a reference sphere in and of itself. Specifically, in Books 23 through 29, Pliny appropriates the work of Theophrastus of Eresos and discusses the lore surrounding what he calls *herbae magicae*. He also engages in a rhetorical digression in which he critiques the methodology of Asclepiades, the Greek rhetor-turned-physician. Pliny rejects features of the Greek tradition and retains others, making them distinctly Roman. These transformative features of Pliny’s text are pertinent to the study of the development of botanical Latin and to Otto Brunfels’ role in it. Brunfels relied heavily on a number of different herbal and botanical authorities, but it was Pliny’s *Historia Naturalis* that was most influential and served as its main *allellopoietic* reference sphere.

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42 This is explained more fully in the Introduction. See Bergemann et al. 2019: 9-26.

43 In Chapter 4, Brunfels’ text will be examined as the reception sphere for Pliny’s text.
Although there is much that is original in Pliny, there is much that has been borrowed from his predecessors, particularly in the sections of his work that deal with plants and medicinal herbs. In a cycle of reference>reception>reference, I therefore argue that one cannot treat Pliny’s text as the reference sphere for Brunfels’ Latinity and style without considering the ways in which the Historia Naturalis is itself a reception sphere that interacts with and transforms its own reference sphere. This chapter is divided into six sections:

a. Pliny’s use of the binomial format and his concern for correct identification of plants.

b. The rhetorical digression in Book 25, in which Pliny discusses rediscovering lost knowledge about plants.

c. Pliny’s critique of the methods of the Greeks, Asclepiades and Theophrastus in particular, including his discussion of book learning versus experience.

d. Pliny’s unexpected discussion of magical herbs, in the fantastic accounts of which he nevertheless finds “much truth”.

e. Healing, the language Pliny uses to describe it, and his moral take on it.

f. His denigration of magic in Book 30.

The first three of these are overtly cited and appropriated by Otto Brunfels in his 1530 herbal. In order to understand the ways in which Brunfels transforms them, it is necessary to consider them in loco suo, in their original context. The last three, which deal with healing, magic, and the magical properties of herbs, are less obvious links to the development of botany as a science, but they are crucial to understanding how herbals changed between Pliny’s time and Brunfels’. So-called magical herbs and properties were present in both the medieval herbal and alchemical traditions and there was considerable overlap between the latter and the scientific projects of certain Renaissance Italian botanists. For example, Ulisse Aldrovandi (1522-1605), the director of Bologna’s Orto Botanico, left to the Aldrovandian Museum four alchemical herbals, “albeit
late and incomplete.” Aldrovandi’s correspondent, the botanist Gherardo Cibo (1512-1600), also had an alchemical herbal, which he annotated. The professional interests of these men were not threatened, but rather supplemented by alchemy. Another of Aldrovandi’s correspondents, Conrad Gesner, published in 1555 De Raris et Admirandis Herbis, Quae, sive Quod Noctu Luceant, Sive Alias ob Causas, Lunariae Nominantur, which is both alchemical and deals with the herb Lunaria, a plant common to many alchemical treatises. Finally, Pliny’s acknowledgement of the moral component of the profession of healing helps to explain why Brunfels listed as authorities for his own herbal not just herbalists and botanical writers, but the Italian Renaissance humanists who emended the printed editions of Pliny’s text. One of these humanist scholars, Ermolao Barbaro (1454-1493), claimed to have “healed” five thousand errors in the editions of Pliny’s work (quinge milia in eo fere vulnera Librariorum sanavimus). Thus, the language of healing is pertinent to the discussion of the relationship between Pliny, the herbal tradition, and Brunfels.


45 This is possibly Fermo, Biblioteca di Fermo, MS 18.

46 Barbaro 1493: aii. See Chapter 3 for more on Barbaro and Pliny.
1.1 Scholarship on Pliny and Natural History

Pliny the Elder’s status as a natural history authority, especially in the field of botany, had declined significantly by the end of the Renaissance. Yet prior to the 16th century, not only was there still an interest in Pliny, there was a small contingent of humanist scholars who were deeply concerned with the ways in which the text of the *Historia Naturalis* had been transmitted and ultimately corrupted over the centuries. The last three decades of the 15th century saw a number of Italian printed editions of the *Historia Naturalis*. From the standpoint of European printing history, the fact that there are several incunables of Pliny’s works is remarkable, an indication of his influence and popularity. Yet the first two editions, in 1469 and 1470, were not well received. The inaccuracies of these editions outraged the 15th-century Italian humanists, who in turn produced competing editions, volumes of emendations, arguments back and forth, and in one case even proposed that church authorities institute some kind of official oversight over printing processes. A detailed account of this morass and its effects, is the object of

47 For example, included in the collection of the Wellcome Library in London is an anonymous painted “quadriptych” (in fact it is two painted cupboard doors, hence it has two separate paintings, each with two images presented vertically, for four total) entitled, “Those Who Named the Plants” (https://wellcomecollection.org/works/frv9cytv) Although undated, the paintings were evidently from a pharmacy in Granada, and depict Adam, Solomon, Theophrastus, and Dioscorides. Each individual image is helpfully, and presumably unironically, labelled. What is remarkable is that the painter has chosen the Greeks over the Romans and pointedly skipped over Pliny the Elder. Similarly, a 1633 herbal printed in London and titled *The Herball, or Generall Historie of Plantes*, depicts on its title page the goddesses Ceres and Pomonia; representing the mortal contingent are Theophrastus and Dioscorides, not Pliny.

48 See Mercati 1925 V: 89n1 and Charlet 2003. *Deux pièces de la controverse humaniste sur Pline: N. Perotti, Lettre à Guarnieri: 69ff* for digested and full reproductions, respectively, of Niccolò Perotti’s 1470 letter to Francisco Guarniero, in which he suggests that Guarniero’s patron, Cardinal M. Barbus, should oversee printers in a form of religious quality control. This letter is revisited in detail in Chapter 3.
Chapters 2 and 3. In this chapter, we will look at Pliny’s text and examine it in light of the development of botanical Latin.

Before delving into this, however, it will be helpful to consider the changing scholarly attitudes towards Pliny. Regardless of the motives behind the various 15th-century editions and emendations of Pliny’s text, each of the editors in question assumed that Pliny was in fact a natural history authority. The early medieval reception of Pliny the Elder was marked by the production of florilegia, by extracts, compilations, and additions to the *Historia Naturalis*. The demand for these kinds of interactions with Pliny can be explained in part by the inaccessibility of his monumental work, current scholarship of which is focused on its encyclopedic and authoritative nature, a trend supported by Pliny’s own description of the work in the preface as ἑγκύκλιος παιδεία. But the rejection of Pliny’s encyclopedism in favor of florilegia in the late antique and early medieval period also indicates a generally positive view of Pliny as a natural history authority. This attitude had eroded significantly by the 20th century, by which time the *Historia Naturalis* was seen as a mostly unoriginal lengthy compilation of earlier Greek and

49 For example, the *Medicina Plinii* of the 4th century is a compilation of the medical information in Pliny, whereas Solinus’ *De Mirabilibus Mundi* extracts geographical information from the *Historia* and adds original material to it.

50 Carey (2003: 18) places the universal nature of the text against earlier writers, such as Varro’s *Antiquitates* and *De Re Rustica*, and Celsus’ *Artes*, arguing that the very structure of the *Historia Naturalis* reflects its encyclopedic function, beginning with the *mundus* and narrowing in focus down to the substance of the earth itself.
Latin naturalists. Critique of Pliny’s Latinity can be traced back at least to Eduard Norden’s 1898 declaration that his stylistics are “dreadful”, an opinion supported a century later by Goodyear’s brutal 1982 summary of the author as a “pedant” incapable of coherence. Garrison (1931) also betrayed a less than effusive opinion of both Pliny and the value of ancient approaches to natural history, describing the Historia as the substitution of old wives’ tales about flora and fauna for the more scientific observations of the naturalists who preceded him. All of these can be contrasted with the following passage from Foucault’s Les Mots et les Choses, regarding the development of Renaissance natural histories (Foucault 1966: 130-131):

Thus, the old word ‘history’ changes its value, and perhaps rediscovers one of its archaic significations. In any case, though it is true that the historian, for the Greeks, was indeed the individual who sees and who recounts from the starting-point of his sight, it has not

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51 The beginning of the end, per French (1986: 252), was Niccolò Leoniceno’s 1492 tract, Plinii et Aliorum in Medicina Erroribus, in which he listed the many scientific errors in the Historia Naturalis. For French, Leoniceno was the first to question Pliny’s authority, and not simply to lament the quality of the printed editions of his text. See also Garrison, F.H. 1931. “Herbals and Bestiaries.” Bulletin of the New York Academy of Medicine. 7: 891-904. Garrison claims that Aristotle and Theophrastus were the first to do “scientific” natural history, “whose descriptions of animals and plants remained unsurpassed up to the Renaissance.” Garrison (1931: 892) does not deem either Dioscorides (who “classified plants by their medicinal properties rather than their botanical characters”) or Pliny (who “substituted a fanciful folklore of plants and animals for the more accurate notations of his great predecessors”) true natural history authorities.


54 Garrison 1931: 893. He says that Pliny is “teeming with errors and superstition.”

55 Les Mots et les Choses: Une Archéologie des Sciences Humaines. Paris, Gallimard. The remainder of the quote: “Until the mid-17th century, the historian’s task was to establish the great compilation of documents and signs - of everything, throughout the world, that might form a mark, as it were. It was the historian’s responsibility to restore to language all the words that had been buried. His existence was defined not so much by what he saw as by what he retold, by a secondary speech which pronounced afresh so many words that had been muffled.”
Foucault is referring to the original meaning of the Greek term ἱστορία as it was used by Herodotus, for instance, as an “inquiry” or “investigation”. By the time of Aristotle and his disciple Theophrastus, it had evolved to mean something akin to the systematic process of obtaining knowledge or information.\(^{56}\) In Pliny’s time, the term therefore already had a proto-scientific use, and as such, I do not approach Pliny’s work as simply a narrative regurgitation of prior sources. Rather, it also consists of original, firsthand observations by Pliny himself. Where he does summarize the ideas and work of others, he adds in commentary that provides useful insight into the use, reception, translation, and dispersion of natural historical texts in antiquity. Moreover, Pliny’s rhetorical digressions are rich with crucial information about how his predecessors reasoned through their contact with the natural world. These digressions, together with Pliny’s penchant for moralizing, irritated Wallace-Hadrill (1990), who pointed to such excursions as an unscientific weakness.\(^{57}\) Yet without them, or those of other writers such as

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\(^{56}\) See, e.g., Arist. Resp. 477a7, al: οἱ περὶ τῶν ζώων ἱστορίαι (“Investigations into Living Things”), and the title of Theophrastus’ work, περὶ φυτῶν ἱστορία (“An Investigation into Plants”, now known as the Historia Plantarum).

Galen, we would not know, for example, that the Greek tradition of reasoning from first causes about medicine and herbs, which Asclepiades employed, was deplored by later physicians.\textsuperscript{58}

Morton (1986: 88-9) marks a turn towards a more positive take on Pliny’s project, pointing out that there is a substantial percentage of material in the \textit{Historia Naturalis} that cannot be traced back to any particular author, an indication that Pliny himself is the likely source.\textsuperscript{59} Wallace-Hadrill (1990) argues, despite his other reservations about Pliny, that the \textit{Historia} is coherent, and that Pliny’s rhetoric helps to place its subject matter (Nature) in context for a more complete picture. Adams (2005) notes the parallels between Pliny’s technical writing and Roman poetics, which share syntactical features because they both have a need for economy of expression.\textsuperscript{60} Doody (2010) calls the later antique tradition of florilegia a “dismantling” of Pliny, who was more than just a pedant regurgitating the ancients. The uniqueness of the \textit{Historia} lies in its stitching together of disparate elements and sources to create a highly original and authoritative work.\textsuperscript{61} Yet the very completeness and breadth of the work rendered it inaccessible

\begin{footnotesize}
\begin{enumerate}
\item Pliny does not specifically address the medical debates in Rome in the 1st century CE. However, Asclepiades was a Methodist, the only school of medicine that developed in Rome and was not of Greek origin, unlike Empiricism or humoral theory. However, the techniques of the Methodists were heavily criticized by Galen and others who worked in the Greek tradition.
\item Adams (2005: 4) defends Pliny against the accusation that by sharing such constructions with poetry, he was trying to lend a poetic flavor to his writing. For an example of such a shared construction, see Pinkster (2005: 248). He describes the \textit{dativus auctoris}, which is found in both Roman poetry and in Pliny, and which, by not using a preposition, not only subtracts from the word total, but also places more emphasis on “content” words than on “function” words. “Seemingly poetic elements in Pliny may therefore rather be the result of his sharing with poetry the same communicative goal of concentration on content.”
\end{enumerate}
\end{footnotesize}
and inconvenient to use. This was the catalyst for the florilegia, which rejected, in favor of accessibility and practicality, the complexity of theory. Doody and Jackson (1988)\textsuperscript{62} agree that this was the primary weakness of the \textit{Historia} and that the dismantling of the text into smaller, more digestible, specialist texts, primarily geographical, medicinal, and herbal, rendered it not only more accessible, but less prone to error, simply by virtue of their shorter length. Nutton (2012) focuses on the importance of Pliny’s use of the Latin language for the preservation of Greek medicinal knowledge and points out that by the end of the 3rd century BCE, there was already a technical Latin medical vocabulary from which Pliny was able to draw.\textsuperscript{63}

This last estimation of Pliny will have the strongest influence on this project. I assume in this chapter that the \textit{Historia Naturalis} is an incredibly rich source of information for anyone interested in the methods, materials, and philosophical foundations of doing medicine, botany, and observation of the natural world in antiquity. I will argue that Books 23 through 30 of the \textit{Historia Naturalis} show how Pliny transformed these processes as they were done by his predecessors and produced something new. The Romanization of the works of the Greek writers on whom Pliny relied was not just a process of translation from one language to another. It also involved the pointed rejection of the Aristotelian methodology employed by both Theophrastus

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  \item \textsuperscript{63} Nutton, V. 2012. \textit{Ancient Medicine}. London; New York: Routledge.
\end{itemize}
\end{center}
and Asclepiades. Pliny cast aside pure deduction and arguments from first causes in favor of experience and the wisdom of folklore. In addition, he believed that Nature had produced a number of plants specifically for medicinal purposes, for the benefit of humankind. Therefore, any approach to the study of these plants that is exclusive or in any way makes herbal remedies inaccessible to people must be rejected. This is why he focuses on ease of identification, the spreading of one’s knowledge, and expertise gained in the field as opposed to book-learning. These three features of Pliny’s text were appropriated by Otto Brunfels in 1530 and given new meaning, transformed into a Renaissance phenomenon that was tied to and embedded in the development of botany as a scientific discipline and to the burgeoning of more and more formal methods of expression in the Latin language.

1.2 Binomials and Plant Identification in Pliny

Binomial nomenclature is simply the method of naming biological entities after their genus and species. The format consists of two plant names, the first of which indicates the genus, and the second of which, the species name, is usually an adjective that in some way distinguishes the plant from others. Despite its association with the 18th-century botanist Karl Linnaeus, the use of this format (two names, one generic and one specific) can be traced to Pliny’s Historia Naturalis.

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64 Pliny would very likely have known of Cicero’s remarks on translation. In De Optimo Genere Oratorum (On the Best Kind of Orator), Cicero declares that he has translated the two best Greek orators, Aeschines and Demosthenes, but that he has done so as an orator, not as an interpreter. That is, he claims to have translated them in such a way as to keep the sense of their speeches, rather than focusing on the minutiae of word-for-word, literal translations, which might be technically accurate but do not get the original point across. This distinction will be revisited in the Book 25 discussion about Lenaeus, a freedman who translated Asclepiades from Greek into Latin.
At Book 12.1, he states that knowledge of animals is both generic and specific (*generatim membratimque*), but this maxim was not limited to the animal kingdom. Pliny employed it for plants as well. Although he is inconsistent in his use of binomials, he often uses two names when he knows of more than one kind of plant, generally using, e.g., *maior* and *minor* for species names, or *nigra* versus *alba*, or the lands in which they originate. Pliny’s adoption of these binomial forms is due in part to the fact that he was concerned with precisely and helpfully naming plants. This meant employing names that are accurate and have identifying information embedded in them, but are also unique to one particular plant. Similarly, he was aware of the fact that the same plant may have different names depending on the place (*HN* 25.10):

> Vetustissima inventu paeonia est, nomenque auctoris retinet, quam quidam pentorobon appellant, alii glycysidem. nam haec quoque difficultas est quod eadem aliter alibi nuncupatur.

The oldest plant to be discovered is the peony, which still has the name of its finder. Some call it *pentorobon*, and others *glycyside*. And this is a further difficulty, the fact that the same plant may be called one thing in one place, and something else in another. Thus, two of the same nomenclatural difficulties that propagated Linnaeus’ system of binomial epithets were common to Pliny’s era as well: 1) using the same name for different plants (or failing to distinguish between different species of the same genus) and 2) using different names for the same plant.

However, rather than engage in either a detailed mapping of plant names to one another, or of some system of ranking by which preferred names might be selected, Pliny focuses his

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65 Contrast Pliny’s concerns about nomenclature with Linnaeus’ proclamation that as long as there was no system of naming in place, it was inevitable that there would be variety and innovation in the names of plants, and that the resulting dissent among botanists is the first step towards barbarism: *Nominum dissensus, primus ad barbariem gradus, quam ponderosum Botanicorum humeris imposuit onus...Inevitabilis tamen hactenus existit nominum innovatio in Botanicis, quamdiu nullae leges assumptae fuere, secundum quas judicari possunt nomina. (Critica Botanica 1737: Dedication, *2).*
attention on the problem of signification: plant names should be in some way descriptive, rather than indicate their discoverer. Pliny makes a third point that ties in with his support for more informative plant names. He critiques the treatment of plants by the ancients as being too wondrous and full of marvel (\textit{neque aliud mirata magis antiquitas reperietur}), as though his predecessors are too gullible to really see nature’s productions. Busy waxing poetic about nature, they failed to discern its features \textit{membratim}. Viewed panoramically, Nature is awe-inspiring, but if one takes the time to focus on the details, the whole becomes more approachable. In the case of medicine, the accumulation of knowledge about the minutiae of the plant world, such as leaf shape, flowers, habitat, medicinal uses, etc., lessens one’s credulousness. Knowledge gained from experience, at a granular level, renders one’s contact with the larger world more informed and aware.

Čermáková and Černá (2018), in their work on the natural histories that came out of the New World, claim that there is a readily identifiable “rhetoric of wonder” in them. What they describe, however, is a different kind of wonder than that which Pliny is referencing. Rather than the gullibility that Pliny seems to rue, and its resulting lack of attention to detail, the New World natural historians were rendered anxious and nearly paralyzed by the strangeness and

\begin{itemize}
\item \textsuperscript{66} The convention of naming plants after their discoverer was explicitly forbidden in Linnaeus’ Aphorism \#263: \textit{Nomen Inventoris, vel alius cuiuscunque, in differentia non adhibeatur.}
\item \textsuperscript{67} Nor will anything else be found in antiquity that is more marveled at.
\end{itemize}
unfamiliarity of the natural world around them.\textsuperscript{69} Pliny’s criticism of viewing nature as \textit{mirata}, on the other hand, is rooted in his belief that long years of close contact with and experience of nature’s productions generate grim, hardened utility and common sense, not childlike wonder. Experience and attention to detail will provide an individual with the necessary tools to begin to approach Nature on a broader scale. This critique of Pliny’s provides us with criteria with which to examine his own writings: the presence of binomials whenever a plant has more than one known species or variety; attention to identifying characteristics and their accompanying vocabulary; and an effort to refrain from expressions of wonder. Binomials, therefore, are just one piece of the puzzle, the aim of which is to be detailed, informative, and precise when writing about plants.

Imprecision in nomenclature, incorrect identification, and overall gullibility with respect to Nature all play a part in the general lack of knowledge of plants in Rome. Yet, in Book 25.6, Pliny describes how there are two reasons that knowledge of plants has devolved in his time. First, herbs are considered the domain of illiterate country folk, who alone live their lives among plants and therefore have experience of them.\textsuperscript{70} This alignment of practical experience with poor country folk reeks of elitism and Pliny implies that wealthy aristocrats have not concerned

\textsuperscript{69} For example, in a 1670 letter, the English Puritan John Winthrop described how, confronted with the strangeness of nature in Massachusetts, he “winced.” (Anecdote told in C. Irmscher. 2019: 5. \textit{The Poetics of Natural History}. New Brunswick, Rutgers University Press. Source: “Extract of a Letter, Written by John Winthrop” (1670), in \textit{The Puritans, A Sourcebook of their Writings}, 1963. Miller, P. and Johnson, T.H., rev., eds. 1963. 2 vols. New York: Harper & Row 2: 740.) Winthrop is expressing awe at a form of nature that was so unfamiliar to Europeans that it caused them intense anxiety. In contrast, the wonder of which Pliny writes seems more reverent than frightened.

\textsuperscript{70} \textit{Sed quare non plures noscantur causa est quod eas agrestes litterarumque ignari experiuntur, ut qui soli inter illas vivant.}
themselves with the exigencies of plant cultivation and use, precisely because they deem it beneath them. But Pliny himself seems to have retained some of that elitism, given that the second reason he gives for the devolution of cognitio about plants is that there are, for many known plants, no names (HN 25.6):

multis etiam inventis desunt nomina, sicut illi quam retulimus in frugum cura scimusque defossam in angulis segetis praestare ne qua ales intret.

Names are even missing for those plants that are known, for example, the one to which I referred with regard to the care of crops and which we know, if it is buried in the edges of fields, keeps the birds away.

Though he is careful not to state any such thing outright, Pliny implies that, because rural folk have a bad habit of using plants without bothering to assign formal names to them, they could use some helpful input from educated individuals such as himself. Yet it seems unlikely that a plant that is inventa does not have some kind of name attached to it. Within a particular community, a singular name in the vernacular could easily refer to exactly one plant, which everyone in that community associates with that name. The “missing names” to which he refers are in fact full and descriptive; they just do not have the form that Pliny recommends.71 Pliny is advocating for Latin names of a specific format, because he thinks that this is the most universal and understandable by everyone in the empire.

Three points can be made about this passage. First, Pliny is sidestepping the deeper issue, which is the connection between the “discovery” of a plant and its naming. What exactly does Pliny mean by invenio and inventus in this context? Is he advocating for some proto-scientific system of identification and assigning of names? Is he implying that a plant that has been used

71 It is also tempting to take this proclamation as tongue-in-cheek, given that Pliny cannot even be bothered to provide a name for the plant, thus placing himself in the number of those who leave plants nameless.
for centuries by peasants cannot really be said to be “discovered” if it does not have the kind of name of which Pliny approves and if its uses are limited to agricultural endeavors? Throughout the Historia Naturalis, Pliny often provides the Greek name for some plant or animal, while acknowledging that there is no name for it in Latin. And at 27.14, he describes a plant whose name is Anonymus, which “has found a name by not finding one” (Anonymos non inveniendo nomen invenit). The pairing of the gerund of invenio with the term nomen is not coincidental. Pliny claims that this plant was indeed well known in Scythia and used by the Greek physicians Hicesius and Aristogiton. Thus, despite apparently having no name, it is in fact inventa.

A second point involves one of the underlying reasons for Pliny’s concern about missing plant names: the naming conventions of ancient Rome, specifically, the transition from a binomial system to the better known tria nomina and the recycling of the same few praenomina. The nomen was the gens name, and therefore provided more descriptive information about the individual than would a praenomen such as Marcus. Pliny sometimes, though not always, uses the term nomen like praenomen, as in the phrases nudis plerumque nominibus defuncti (25.5.9) and desunt nomina (25.6). In the first case, where he is critiquing the Greek tradition of using bare, non-descriptive names, the term praenomen would make more sense. In the second case, he likely means nomen either as the gens name, or possibly both a praenomen and a nomen; that is, somewhere in between the two in terms of specificity. The most granular of the tria nomina, though, was the cognomen, and Pliny’s use of this term is not interchangeable with the other two. Indeed, says Pliny, some individuals, having made an important botanical discovery, have been

72 See, e.g., 21.26 (Chrysocome); 30.16 (Trixallis = locust-like insect); 13.48 (Phycos); and many more.

73 27.XIV: Anonymos non inveniendo nomen invenit. Adfertur e Scythia, celebrata Hicesio non parvae auctoritatis medico, item Aristogitoni.
rewarded by having their cognomen attached to the plant and to the memory of humankind (singula quosdam inventa deorum numero addidere, quorum utique vitam clariorem fecere cognominibus herbarum).\textsuperscript{74} The Roman praenomina were too few in number and therefore too nonspecific to be used in such a manner. Nomina gentilicum, too, were not specific enough, since they could be shared by any number of citizens from the same gens. It is therefore the cognomen that is used to name a plant after its discoverer, since it functioned in much the same way as do the species names in modern binomial epithets. They provide information about the individual’s personal characteristics, such as their personality, physical form, facial features, their occupation, their place of origin, and their successes.\textsuperscript{75}

A final point can be made about Pliny’s remarks on missing or non-descriptive names: one of the reasons why the binomial format shows up in Pliny and not in the Greek writers, is that the Latin language is less prone to synthesis than Greek. Nybakken (1959) explains how Greek in particular is “well suited for use in forming economical, descriptive, and euphonious compound terms.”\textsuperscript{76} Because Latin superseded Greek in botanical nomenclature, most examples of this feature in Greek are found in medical or pharmaceutical terminology, e.g., nephrolith, gastralgokenosis, atelencephalia, and strephenopodia. Greek allows for the construction of highly

\textsuperscript{74} 25.1. “Individual discoveries have added certain people to the number of the gods, whose lives, certainly, they have rendered more illustrious with their cognomina [being granted to] the herbs.”

\textsuperscript{75} It is also worth pointing out here that by appropriating the cognomen into plant nomenclature, the Romans were inviting the comparison of humans with plants and the anthropomorphization of plants. They were also strengthening the idea that discovery (in the sense of an explorer who encounters land and takes credit for knowing about it, despite the presence of indigenous peoples who have occupied it for generations) was a necessary prerequisite for naming.

specific compound words, which by virtue of being composed of more than one word, have very complex meanings embedded in them. Latin simply does not allow for such variety or originality and as a result, by insisting on using Latin, Pliny had to resort to the binomial format in order to express the same level of detail.

But the convention of assigning to a plant the name of the discoverer, whether the *cognomen* or *nomen*, is the easier of the two nomenclatural difficulties to handle. One simply needs to instate a new protocol that involves assigning meaningful names to all plants. The larger issue is that this is of no use if the proponents of the field close ranks. In Pliny’s opinion, the worst of the reasons for lack of general knowledge about plants in Rome is that those who do know such things do not bother to teach them to others (*turpissima causa rariitatis quod etiam qui scient demonstrare nolunt, tamquam ipsam periturum sit quod tradiderint aliis*). In addition, there is no tried and true method of discovery. Thus, Pliny is disturbed by the fact that no one has ever bothered to devise a systematic method for the identification and collection of plants.

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77 *HN* 25.6. “The most shameful reason for this scarcity is that those who have knowledge of it do not want to teach it, as though what they might hand over to others would then disappear for themselves.” As an example, Pliny refers to *cynorrhodon*, which cures the hydrophobia that results from a dog bite, but which most people did not know of, because the authorities did not write about it. Its medicinal use was only popularized when a soldier who had been bitten by a dog received a letter from his mother informing him of the cure, about which she had dreamed.

78 He says that a plant’s discovery is sometimes due to chance and at other times due to a god (*accedit ratio inventionis ances, quippe etiam in repertis alias inventit casus, alias, ut vere dixerim, deus*). The assertion that a person’s awareness of a plant can be attributed to a god is not particularly interesting; it amounts to much the same as the assertion that chance is the discoverer. Pliny also describes the discovery of plants, especially those with medicinal properties, as an honor (*tanta res videbatur herbam invenire, vitam iuvare*), and, given the customary reward of having one’s name handed down to posterity via the name of the plant, it is likely that this is what he means by saying that a plant’s discovery is sometimes due to a god: a god has decided to bestow this benefit onto some blessed individual. See above note for the old woman’s dream about *cynorrhodon*. 

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This is a partial answer to the question posed above, regarding Pliny’s understanding of “discovery”. Despite his advocacy for the knowledge of plants that one can glean from *agrestes*, he nevertheless appears to think that there is a need for a methodical survey of this knowledge and the assignment of useful, descriptive names to all plants.79

“Bare Names”

Beyond nomenclature, however, there was another issue with the promulgation of knowledge of medicinal herbs. Greek writers80 who dealt with plants, such as Crateuas, Dionysius and Metrodorus, employed a methodology that Pliny views as peculiar: they would provide an image of a plant, under which they would include its properties (*pinxere namque effigies herbarum atque ita subscripsere effectus*).81 This was problematic because of the

79 Pliny complains that all previous works on plants and herbs are nothing more than *ad hoc* compilations of lore surrounding them. However, this is not entirely true, or at least, it is not the most accurate description of the works of the Greeks, specifically, of Theophrastus. It may be true that with regard to identification and collecting, Theophrastus did not employ a systematic method, but his *De Causis Plantarum* and *Historia Plantarum* are highly organized, and use the Aristotelian method of deduction. Thus, Pliny is likely criticizing the Roman authorities who came before him.

80 Besides Theophrastus, whose works were unillustrated.

81 25.8. Crateuas, a botanist who lived under Mithridates of Pontus (120-63 BCE), for whom he was physician (Singer 1927: 5), was the author of the *Rhizotomikon*, considered the earliest illustrated herbal (Garrison 1931: 893). It is thought that eleven of Crateuas’ illustrations have been preserved in three separate codices of Dioscorides, one of which is at the Morgan Library, the Cheltenham codex. To see which illustrations have been preserved, see Singer, C. 1927: 7. In discussing the 10th c. Julia Anicia codex of Dioscorides, he points out the 11 illustrations in question, which the scribe explicitly states are taken from Crateuas. They are all compiled in Weidmann’s edition of Dioscorides, pg. 144: Greater *Aristolochia* (*Aristolochia sempervirens* fol. 17v); Round *Aristolochia* (*Aristolochia pallida* fol. 18v); *Achilles* (*Salvia multifida* fol. 24v); Purple *Anemone* (*Papaver dubium* fol. 25v); *Asphodel* (*Asphodelus* sp., fol. 26v); *Argemone* (*Adonis aestivalis* fol. 28v); *Arnoglosson* (*Plantago* sp., fol. 29v); *Asaron* (*Asarum europaeum* fol. 30v); *Asterion* (*Silene linifolia* fol. 32v); *Anagallis arvensis* (fol. 39v) and *Anagallis foemina* (fol. 40v).
potential for inexactness and because mistakes could occur when copying these illustrations.\textsuperscript{82} Pliny’s critique of this methodology foreshadows the frustrations of the 15\textsuperscript{th}-century humanists who denigrated the first printed editions of his work, but it also indicates that the twin issues of manuscript variants and scribal error were on Pliny’s radar. In addition, Pliny criticizes the fact that in these illustrations, only one image would be provided of a plant, which can have quite varied appearances, depending on where it is in its growth cycle (\textit{praeterea parum est singulas earum aetates pingi, cum quadripertitis varietatibus anni faciem mutent}).\textsuperscript{83} In response to these exigencies, Pliny notes that other Greek authors chose to forego illustrations entirely, even though they can make identification in nature easier, using instead nothing but words to describe plants. In some cases, these individuals even neglected to provide a full name for the plant, preferring instead to describe a plant’s properties and medicinal uses and to use “simple” or “bare” names, as opposed to more specific ones (\textit{HN} 25.5.9):

\begin{quote}
Quare ceteri sermone eas tradidere, aliqui ne effigie quidem indicata et nudis plerumque nominibus defuncti, quoniam satis videbatur potestates vimque demonstrare quaerere volentibus.

So certain individuals passed them (herbs) down by word of mouth, but others, without even using an illustration, acquitted themselves for the most part with bare names, since this seemed sufficient to demonstrate their benefits and potency to anyone willing to seek them out.
\end{quote}

\textsuperscript{82} \textit{verum et pictura fallax est coloribus tam numerosis, praeertim in aemulationem naturae, multumque degenerat transcribentium fors varia. (“But even a painting is misleading in its variety of colors, especially in the emulation of nature, and the varied happenstance of the copyists results in many errors.”)}

\textsuperscript{83} “Moreover, it is not enough for the individual stages of herbs to be depicted, because their appearance changes in accordance with the four seasons of the year.”
Pliny’s point is that it is not enough to describe the *potestas* or *vis* of a plant, since in order to avail oneself of a plant’s uses, one first has to find it. In the custom in question, if an individual wishes to learn the medicinal properties of a plant, they need to consult someone who already knows how to find the plant. By contrast, had this information been provided in a more systematic way, accompanied by illustrations and names that actually provide insight into the plant’s properties, that individual would be more independent and able to pass this information on to others. The problem is that these “bare names” are in the same general category as the “missing names” above: they are only bare to those who do not understand them. In fact, Pliny claims that this kind of knowledge about plants, despite having been handed down in less-than-

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84 The terms *potestas* and *vis*, the primary meanings of which involve physical strength, here indicate a property of nature’s productions, but they came eventually to refer specifically to medicinal applications. This evolution of the usage of the terms is partially explained by viewing the treatment of a disease, injury, or ailment as a show of strength in the face of the callousness of nature and other human beings. It also, however, alludes to the recurring issue of magical herbal properties: to overcome disease and pain can be almost mystical in its relief, and it is no wonder that the effects of an herb would eventually be aligned with concepts of physical prowess, valor, and courage.

85 Copeland (2010: 48) picks up on the links between names, the things to which they refer, and pedagogy in an analysis of the medieval text *De nominibus utensilium* by Alexander Neckam, which uses short narrative passages to introduce students to a variety of everyday terms. He says, “What is Neckam’s *De nominibus utensilium* about? Quite simply, it is about things, and the words we use to refer to them, and it is about words themselves as things to be incorporated in a cognitive engagement with them. The words themselves are ‘things’ apprehended through a particular, contextual relationship with the pupils; the particular context is learning the Latin words for familiar objects. Neckam’s text renders names real by linking them to objects in the world.” The transmission of knowledge of plants, as Pliny discusses it, is not entirely analogous to the pedagogical context Copeland is referring to with Neckam’s text, but the methodology is quite similar: Neckam solidifies and stabilizes the Latin terms by putting them into a context with other, similar words that deal with the same general subject matter. Likewise, Pliny’s point is that by using plants and having experience with them, an individual has a different relationship with that plant’s name than if they simply “discover” it (and put their name on it) or read about it.

86 The adjective *nudus*, applied as it is to the noun *nomina*, will come up later in the discussion on Otto Brunfels, who calls German plants that he cannot accurately map onto Latin and Greek names, *herbae nudae*. See Chapter 4.
ideal ways, i.e., by word of mouth and without the benefit of illustration, is actually easy to come by (*nec est difficilis cognitio*). But if knowledge of herbal medicine is so readily available, why does it matter so much that the Greeks handed it down by word of mouth, with “bare names” and without illustrations? There are two reasons. First, Pliny is decrying the intentional obfuscation on the part of his predecessors of the field of the study of plants. Those who use “bare names”, name plants after themselves, or employ inferior methods of knowledge transmission, are not simply guilty of a sin by omission. Rather, they are purposefully keeping knowledge of plants to themselves. For Pliny, and later on for Otto Brunfels, concern about accurate naming and transmission of knowledge was still a moral issue. By Linnaeus’ time, however, the *innovatio* (variety) of plant names, while still a major problem that warranted the publication of the *Fundamenta Botanica* in 1736, had transformed into a scientific problem. Second, Pliny is hinting at a larger claim that he will make later on, namely, that book learning cannot replace practical experience when it comes to plant lore, whether it be propagation, cultivation, or use in medicine.

Pliny does not use *verba* or *scripta*, but rather *sermo* to describe this method of knowledge transmission, a term that heavily implies conversation and dialogue, especially in person. Evidently, a *sermo* as a method of transferring knowledge was insufficient, because of the inevitable corruption of the original statement once repeated. Pliny seems to think that there are plant names that are the opposite of *nudus*, that are instead full, laden, and clad with information and which serve the purpose of and allow for accurate identification. The Greek 

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87 To an extent, this is a Pliny-ism, seen in his account of Lenaeus’s translations of Asclepiades: *Pompeius autem omni praeda regia potitus transferre ea sermone nostro libertum suum Lenaeum grammaticae artis iussit* (*HN* 25.3 or 4). Moreover, Horace called his “satires” *sermones* and set a precedent for referring to written accounts of dialogue as such.
writers did not think such names were necessary. Indeed, at 22.1, Pliny had declared that he was going to discuss plants that serve as foodstuffs, but that no one should consider the subject matter small or insignificant simply because of the baseness of their names (nemo id parvum ac modicum existimaverit nominum vilitate deceptus). The implication is that the benefits are often overshadowed by the imprecision of a plant’s name. Yet despite these issues, Pliny claims that knowledge of plants is not difficult to obtain. There is no need for glorious quests, such as conquering a mighty king with a vast library, in order to gain knowledge of plants. One need only examine them in person. Thus, he rejects book learning in favor of knowledge gained from experience.

Pliny’s recommendations for plant nomenclature are extensible to the field of medicine. This makes sense given that plant identification and accurate, readily available information are

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88 As noted above, Greek is far more synthetic than Latin, allowing for longer, compound words that are more descriptive than a single Latin word would be. Pliny was certainly aware of this, which means that he sees the content of these Greek names as the problem: that is, despite working with a language that has this incredible communicative feature, the Greeks did not take full advantage of it.

89 Maximum hinc opus naturae ordiemur et cibos suos homini narrabimus faterique cogemus ignota esse per quae vivat. nemo id parvum ac modicum existimaverit nominum vilitate deceptus. Compare Pliny’s defense of plants with common names to Doug Tallamy’s remarks on marketing of native species in his 2020 book Nature’s Best Hope. He says (2020: 170-1), in reference to a number of native species with the word “weed” in their names, “The situation under which such plants came to be considered weeds is understandable, but today their common names have stacked the emotional deck against them. We all have cultural permission to destroy a weed anywhere, anytime, because it’s just a weed. Let’s face it - we have a marketing issue with our native plants.”

90 His reason for this assertion is one that Brunfels would reiterate a millennium and a half later.

91 All the better if one has access to a garden, as Pliny himself did, to the gardens of Antonius Castor. Nobis certe, exceptis admodum paucis, contigit reliquas contemplari scientia Antoni Castoris, cui summa auctoritas erat in ea arte nostro aevo, visendo hortulo eius in quo plurimas alebat.
his main concerns and given that plants were used medicinally. We can see how he applies these same criteria to the names of diseases. For instance, in Book 26, Pliny discusses a number of new, disfiguring facial diseases that were popping up all over Rome, but which were unknown to the ancients. He provides a lengthy account of the symptoms, transmission, effects, and treatment of these skin diseases and marvels that some of them, such as leprosy, pop up in Italy, but then disappear. For other diseases, even their name becomes obsolete, as for example “gemursa” (HN 26.5.8):

\begin{quote}

et hic quidem morbus [= leprosy] celeriter in Italia restinctus est, sicut et ille quem gemursam appellavere prisci inter digitos pedum nascentem, etiam nomine oblitterato.

Indeed, even this disease (leprosy) was quickly extinguished in Italy, just as the disease that the ancients called “gemursa”, which shows up between the toes of the feet, with even its name completely forgotten.
\end{quote}

He then turns to the disease *colum*, which is an intestinal sickness and which, he remarks with wonder, has not disappeared but has become endemic, having arrived in Italy during Tiberius’ rule. The emperor being the first to suffer from it, the people had not heard the name before it was read out in an edict in which Tiberius cited it as an excuse for a sick day. In contrast to the disease “gemursa”, which Pliny expected his readers to recognize even if it was no longer endemic in Italy, the people had no frame of reference to *colum* and no “thing signified” they could identify (*quid hoc esse dicamus aut quas deorum iras?*). Thus, although Pliny is discussing diseases, not plants, he nevertheless is engaged in an astute discussion of the difficulties inherent

\footnote{This name is now so obsolete that it is nearly *hapax legomenon* and modern editors of Pliny cannot even identify the disease it names. The Loeb editors state, “We do not know what *gemursa* was, this being the only place (except once in Festus) where the word occurs.”}

\footnote{HN 26.6. *Nec quisquam id prior imperatore ipso sensit, magna civitatis ambage, cum in edicto eius excusantis valetudinem legeret nomen incognitum.*}
in and the importance of naming and identifying things. As he asks with regard to this new disease name, *colum*, was it really necessary to invent a new kind of disease? Were the kinds that were already established too few, though they were more than 300, such that new ones were needed to instill fear?\(^{94}\) This conundrum is further complicated, says Pliny, by the fact that humankind has brought the same number of problems on itself (*neque ipsi autem homines pauciora sibi opera sua negotia importat*). Pliny’s use of *opera* evokes the concept of the productions of nature, the main focus of the work as a whole, but it also refers to plants and their varied uses for humankind. Thus, whereas nature produces a number of works for our benefit,\(^{95}\) mankind instead creates “work for itself through its own labor” (*sibi opera sua negotia*). Nature does not produce anything to its own benefit or detriment.

Pliny’s remarks cannot be taken as anything more than the developing kernel of a natural system of philosophy, but he is aware of the fact that the plethora of issues humankind faces are in many cases their own fault. This includes the confusion surrounding naming conventions. What, indeed, is the difference between *colum* as an intestinal disorder and other such diseases, that it needed its own new name? Similarly, the names of plants, if mixed up, resulting in the wrong signifiers, can create more *opera* for humans than benefits.\(^{96}\) This is partially why Pliny so frequently explains the etymology of a plant name: where the physical description of the plant

\(^{94}\) *Parum enim erant homini certa morborum genera, cum supra trecenta essent, nisi etiam nova tимерентur?*

\(^{95}\) Perhaps to counteract those things that Nature also produces to our detriment, such as diseases.

\(^{96}\) Again, consider Linnaeus’ “definition” of the botanist as one who, in contrast with those who are uneducated (e.g., Pliny’s and Brunfels’ *rustici* and *vetulae*), can assign one particular name to one particular plant, and no other, a name that is universally understood (*Botanicus itaque distinguitur ab Idiota, eo, quod ille dare queat nomen huic, non alteri plantae, applicabile, cuique, ubicunque demum terrarum, intelligibile*). (*Critica Botanica* 1737: Aphorism #210).
is not sufficient to distinguish it from others, it may help to know why it was so named. This habit of Pliny’s would not be necessary if 1) plants did not have “bare names” and a person could divine key features from their nomenclature, and 2) the descriptions, whether visual and illustrative or verbal and textual, were accurate and precise.

1.3 Book 25.1-5: Pliny’s Rhetorical Digression

The beginning paragraphs of Book 25 stand out as the locus of an important rhetorical digression, in which Pliny discusses certain concepts that are key to the argument that his text is both a reference sphere for early Renaissance botanical texts and a reception sphere in which earlier botanical sources are transformed. In the first two sentences of Book 25, Pliny makes a claim that makes clear the primary object of his criticism. He asserts that the ancients knew almost everything there was to know of plant lore, none of which they kept to themselves and all of which they passed on to posterity (HN 25.1).\(^97\)

Ipsa quae nunc dicetur herbarum claritas, medicinae tantum gignente eas Tellure, in admirationem curae priscorum diligentiaeque animum agit. nihil ergo intemptatum inexpertumque illis fuit, nihil deinde occultatum quodque non prodesse posteris vellent.

And now, this very clarity about herbs will be discussed, including the fact that the Earth produces them at times for medicinal purposes, which induces in the mind admiration for the care and diligence of the ancients. For nothing was untested and untried for them and in fact, nothing was secret, nor was there anything that they did not want to be of benefit to posterity.

This is in contrast to Pliny’s own time period, when the things that were worked out by the ancients were kept secret and hidden away. By engaging in this secretiveness, Pliny’s peers defraud others of life itself (\textit{at nos elaborata his abscondere ac supprimere cupidus fraudare}

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\(^{97}\) He also asserts that the Earth, the mother of herbs, produces some of them solely for medicinal purposes, \textit{medicinae tantum gignente eas Tellure}. 
vitam etiam alienis bonts).\textsuperscript{98} The end result is that the chief aim of intellectual study in Pliny’s time is to keep to oneself one’s discoveries and in so doing, to forget what was once known to all (\textsc{HN} 25.1):

\begin{quote}
tantum ab excogitandis novis ac iuvanda vita mores absunt, summumque opus ingeniorum diu iam hoc fuit ut intra unumquemque recte facta veterum perirent.
\end{quote}

Customs [=best practices] are so lacking in the invention of new things and in assisting life that for a long time now, the highest task for our great thinkers has been this: that inside each one of them the deeds of the ancients might perish entirely.

I take this to mean that, in the context of the study of plants, the private retention of one’s knowledge can have a clear negative effect, namely, of preventing others from knowing how to heal themselves and their loved ones with herbs. But Pliny is also asserting that knowledge is not really knowledge if it is not shared. This revelation therefore also fleshes out the connection between discovery and naming discussed above. Pliny does not state this, but it is implied that the term \textit{inventa} can only be used of a plant if it is both known to a broad audience that is capable of identifying and using it, and has a name that assists this process.

Pliny further laments the fact that his fellow Romans, despite their interest in anything that is utilitarian, seem to have ignored this particular field of study (\textit{minus hoc quam par erat nostri celebravere omnium utilitatem et virtutum rapacissimi}).\textsuperscript{99} All of this ties in with his claim that there are no best practices or \textit{mores} in the discovery of new things. As a result, individuals

\textsuperscript{98} “But we, instead, wish to hide away and suppress the things elaborated upon by [the ancients], and even to defraud others, who are good people, of life itself.”

\textsuperscript{99} “Our people have practiced this less than was suitable, despite being incredibly voracious for anything useful and excellent.” (25.2). Here, Pliny appropriates the language of honor, courage, and manliness, all traditional Roman virtues, to describe the powers and strengths of herbs, which possess \textit{utilitas} and \textit{virtus}. The alignment of herbs with the field of medicine, which most aristocratic Romans saw as a Greek profession that was beneath them, likely contributed to this refusal to learn about plants.
keep what they have found to themselves and the information that the ancients once knew and passed down has died off in Pliny’s time. The custom of applying one’s *cognomen* to a particular plant was also restricted to plants with medicinal uses.\(^{100}\) If an herb has strengths, not simply pleasures, associated with it, then not only does it bring glory to its discoverer, it is worthy of being passed down.\(^{101}\) This is a far more important issue than it might at first seem and Pliny now turns to a discussion that will be crucial to this project. He has just laid out how Romans who value knowledge, utility, and strength seem not to care for the study of plants. Moreover, when they do know of some product of Nature, they slap their own name onto it and keep it private.\(^{102}\) In contrast, Pliny claims that it was a Roman freedman (who would not have had the

\(^{100}\) See also 25.32, regarding the plant *Centaurius triorchis*: XXXII. *Tertia est centauris cognomine triorchis*. Or 25.68: LXVIII. *Est et altera cyclaminos cognomine cissanthemos*.

\(^{101}\) Pliny does not elaborate on this particular point, but it is worth wondering if any of the people to whom he is referring would have kept medicinal knowledge to themselves. This seems antithetical to the concept of medicine to the modern mind, but if the individuals were not medics, then it is possible that there was no impulse to share what they knew with the broader public.

\(^{102}\) Pliny does not provide a detailed explanation for the selfishness of which he accuses Romans in this passage. However, at 29.8, in addition to claiming that “the height of impunity for having killed a man belongs to the physician alone” (*medicoque tantum hominem occidisse inpunitas summa est*), he criticizes physicians for their greed, calling them a crowd of hoodlums (*multitudo grassantium*) and noting that “it is not even shame but their rivals that limit their fees” (*neque enim pudor sed aemuli pretia summittunt*). Thus, Pliny sees a troubling pattern in Rome of a transactional transmission of knowledge. Moreover, charitable and philanthropic medical institutions were not commonplace in 1st-century CE Rome. The earliest such hospitals were Christian and did not begin appearing until around the 4th century. (See Nutton 2012: 314–16). Prior to that, the public hospitals in Rome served a more utilitarian and economic function: they provided medical care to slaves and the indigent because it made sense to keep them healthy enough to work. The only real evidence we have for public doctors (*iatroi*) is not only heavily debated, but Greek, not Roman. There are exceptions, of course. For example, a physician named Paccius Antiochus is said to have written a letter to the emperor Tiberius when he was on his deathbed c. 30 CE. In it, he described a painkiller, which Tiberius then arranged to be available in public libraries, so that anyone could read about it. This remedy is preserved in Scribonius’ *Drug Recipes* (#97). It was also attributed to Philonedes of Catania.
tria nomina to bestow onto plants and thereby gain glory), who knew the most about medicinal herbs. At 25.3, Pliny not only discusses, but explicitly names Pompeius Lenaeus, freedman of Pompeius Magnus, who had defeated Mithridates VI Eupator, the famed Persian-Greek king. It was Mithridates who learned that by ingesting poison one could develop immunity to it and who first discovered a number of antidotes, including the one named after him (HN 25.3):

uni ei excogitatum cotidie venenum bibere praesumptis remediis ut consuetudine ipsa innoxium fieret; primo inventa genera antidoti ex quibus unum etiam nomen eius retinet.  

To him alone is the discovery due, to drink poison every day under the assumption that it would serve as a remedy, so that, by means of this very habit, the poison might become innocuous; he was also the first to discover the genre of antidotes, one of which even retains his name.

The first thing to note in this passage is that Pliny uses the term *nomen* as opposed to *cognomen*. This may simply be due to the fact that Mithridates was not a Roman citizen and therefore did not have the *tria nomina*, in which case, his “family name” is sufficient to identify him. Second, Pliny uses the participles *excogitatus* and *inventus*, thus underlining the tradition of aligning discoverability with “discoverer”. Third, Pliny is highlighting the fact that among the Romans, it was a non-elite person, a former slave, who had the most knowledge of medicinal herbs. This knowledge, he implies, may have been learned from contact with the Persian-Greek king, who himself evidently corresponded with the Greek physician Asclepiades (HN 25.3).  

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103 In this case, Pliny’s claim corresponds to historical and material evidence about physicians in Rome. Based on inscriptions (a biased lot, since most came from imperial households), before 100 CE, only about 10% of doctors were Roman citizens; > 75% were slaves or ex-slaves; < 5% do not have a Greek name. (Nutton 2012: 168).

104 Celsus preserved the famed Mithridates antidote. See De Re Medica V.23 for his version of the recipe.

105 Asclepiades of Bythinia, c. 129 or 124 - 40 BCE. It is said that he taught Greek medicine at Rome, a detail that invites skepticism and speculation about how Pliny characterizes the translation and dissemination of his works. Brunfels retells this story of Pliny’s (1530: 272-73).
ad illum Asclepiadis medendi arte clari volumina composita extant, cum sollicitatus ex urbe Roma praecepta pro se mitteret.

Still extant are volumes composed by Asclepiades, famed for his skill in healing; for, when he was solicited [by Mithridates] from the city of Rome, he sent his *Precepts* in his place.

The specific implication made by Pliny is that Asclepiades wrote to Mithridates about medicinal herbs and that these *praecpta* informed Mithridates’ vast knowledge of medicine. Pliny then relates how Mithridates had a large library of treatises on every subject and a large number of specimens, that this library eventually made its way to Pompeius Magnus, who then ordered Lenaeus, a man skilled in grammar, to translate them into Latin (*HN* 25.3):

> Pompeius autem omni praeda regia potitus transferre ea sermone nostro libertum suum Lenaeeum grammaticae artis iussit.

Pompeius moreover, empowered by all of the royal plunder, ordered Lenaeus, his freedman, who was skilled in the art of grammar, to translate them into our language.

According to Pliny, the knowledge of medicinal plants that the Romans possessed originated in a translation from the Greek. Asclepiades lived in Rome, but had not written his *Praecepta* in Latin. Nor had any of his colleagues bothered to translate them while he was there. Rather, it took a Roman to obtain these volumes, which were in the collection of a Persian-Greek king, to have them translated. Pliny will eventually make clear why he is so concerned with this issue of translating Greek texts into Latin. In part, the transmission of knowledge has a moral component,

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106 Asclepiades’ *Praecepta* are no longer extant. There are some *Precepts* preserved under the title Παραγγελίαι, sometimes attributed to Asclepiades, although they are generally treated as part of the Hippocratic corpus. Based on Pliny’s and Galen’s takes on Asclepiades, it is unlikely that these *Precepts* are those of Asclepiades. The author says that in the practice of medicine, one should not focus on theories, but on a combination of experience and deductive reasoning: δεῖ γε μὴν ταῦτα εἰδότα μὴ λογισμῷ πρῶτον πιθανῷ προσέχοντα ἰητρεύειν, ἀλλὰ τριβῇ μετὰ λόγου. ὁ γὰρ λογισμὸς μνήμη τῆς ἔστι συνθετική τῶν μετὰ αἰσθήσιος ληφθέντων. (“But, knowing these things, one should not be a healer first and foremost dedicated to plausible theories, but to experience in combination with reason. For a theory is a composite memory of things apprehended with sense-perception.”)
hence his description of the Romans defrauding others of life itself. This moral point is the reason why in Book 29, Pliny will make an argument for writing about Nature in original Latin.

Regarding this anecdote about Asclepiades sending his Precepts to Mithridates, Pliny also implies that the Romans who had contact with Asclepiades while he was in Rome were uninterested in his writings on this particular subject. Either that, or there was a language divide among the Roman intelligentsia such that this cognitio was inaccessible to those who could not read Greek. In addition, Lenaeus is described as skilled in grammar, not in oratory. This is remarkable because of Cicero’s remarks on translating from Greek into Latin, in reference to the distinction between translating the sense of a passage or work (as an orator), and translating literally (as an interpreter). In De Optimo Genere Oratorum, he explicitly states that he had translated Aeschines and Demosthenes, both Greek orators, as an orator himself (DOGO 5):

\[
\text{nec converti ut interpres, sed ut orator, sententiiis isdem et earum formis tamquam figuris, verbis ad nostram consuetudinem aptis. In quibus non verbum pro verbo necesse habui reddere, sed genus omne verborum vimque servavi.}
\]

Nor did I translate them as an interpreter, but as an orator, with the same ideas and the same forms of the ideas, or rather, the same figures, in words that are suited to our own way of speaking. In these [translations], I did not consider it necessary to translate word for word, but rather, I have preserved the style of the words as a whole and their force.

Pliny does not give any information about the nature of Lenaeus’ translations, but it is worth considering that even in Pliny’s time, there were scholarly discussions about how to capture the sense of an author’s words when moving from one language to another. In the case of medical precepts, the importance of accuracy has a different tenor than it does for Cicero the orator. For him, the main concern is the argument and the fact that the entire point of an oration is to persuade. For someone involved in medicine, the stakes are considerably higher: inaccuracy can result in sickness or even death. The so-called ad verbum style of translation that Cicero rejects
was, however, suited for technical texts.\textsuperscript{107} Pliny does not outright address this particular issue, but as modern scholars, we can read between the lines and see that by discussing this minor historical occurrence, if indeed it even happened, Pliny is providing us with invaluable information about translation between Greek and Latin in the 1st century, about the status of medicine versus oratory, about the transmission of knowledge over time, and about \textit{cognitio} about plants.

Although Wallace-Hadrill (1990) complained about Pliny’s rhetorical asides, dismissing them as unscientific, the morals embedded in them are invaluable for deciphering the state of medicine in Pliny’s time. Rizzo (1973) has pointed out that the words we use are an indication of what we value. What we engage in dialogue about is a reflection of our beliefs, concerns, and values.\textsuperscript{108} Pliny was not wasting his words by moralizing about handing down one’s \textit{cognitio} about herbs or by discussing the translation of Asclepiades into Latin by a freedman. The former is a reaction to the unfortunate custom among his contemporaries to hoard one’s knowledge and the latter provides an example in support of his recommendation to reject elitism (in the sense of treating only well-educated elites as authoritative sources). These, together with his remarks on the need for a system of discovery and meaningful nomenclature, do more than simply set the stage for his upcoming critique of Greek methodology: they serve as evidence for the argument that Pliny’s text was itself a reception sphere, in which he did far more than simply reiterate the

\textsuperscript{107} Whether Asclepiades’ \textit{Precepts} were considered technical or philosophical is unknown. See pg. 49n106 above for a brief discussion of the text sometimes attributed to Asclepiades. It reads as more philosophical than technical, but is also quite unlikely to actually be Asclepiades’ \textit{Precepts}.

ideas of his predecessors. Rather, Pliny was proffering up to his readers substantive suggestions for a method of doing “botanical” work that was both moral and resulted in accurate and reliable information.

1.4 Pliny’s Critique of the Greeks

Asclepiades’ Flawed Methodology

In Book 26, Pliny is in the middle of a discussion about an unknown and unnamed disease from which the emperor Tiberius claimed to suffer. Suddenly, he switches to an overview of the ancient authorities who wrote about Nature’s plant remedies, which, he says, were long in vogue (HN 26.6.10):

haec apud priscos erant quae memoramus remedia, medicinam ipsa quodammodo rerum natura faciente, et diu fuere.

The remedies that I am recounting were known among the ancients, with the very Nature of things itself producing medicine; and indeed, they were known for a long time.

For example, we can find volumes of Hippocrates, who first produced “precepts for the art of healing”, which are full of mentions of herbs.\(^{109}\) But over time, actual experience, the most efficacious of teachers, especially in the art of medicine, gave way to “words and chatter”.\(^{110}\) It was more comfortable to sit in a schoolroom engaged in listening to an instructor than to go into the wilderness and seek out various herbs on certain days of the year.\(^{111}\) For this reason,

\(^{109}\) Hippocratis certe, qui primus medendi præcepta clarissime condidit, referta herbarum mentione invenimus volumina.

\(^{110}\) paulatim usu efficacissimo rerum omnium magistro, peculiariter utique medicinae, ad verba garrulitatemque descendente. (HN 26.6)

\(^{111}\) sedere namque in scholis auditioni operatos gratius erat quam ire per solitudines et quaerere herbas alias aliis diebus anni. (That is, when they are blooming, identifiable, etc.)
students of medicine preferred to learn about herbs through *verba et garrulitas*, rather than through fieldwork. Yet the main recommendation for the latter method is proper identification, especially if it is assumed that the individuals in question did not have reference images. The importance of harvesting the correct herb in the proper growth stage, with the correct appendages, did not take precedence over physical comfort.\textsuperscript{112} Despite this devolution in the quality and character of the art of medicine, Pliny claims that it remained firm and protected the magnificent remains of its professed subject matter (*durabat tamen antiquitas firma magnasque confessae rei vindicabat reliquias*).\textsuperscript{113} This was the case until Asclepiades, the master of rhetoric, abandoned his field of expertise for medicine. This was a crucial turning point because, unlike those lovers of words and chatter that came before him, Asclepiades was sharp enough of mind to reject all of the medicinal knowledge of the ancients and instead withdraw the entirety of medicine into a system of causation, despite having no practical knowledge of herbs or remedies associated with them. By doing so, he made medicine into a matter of conjecture (*omnia abdicavit totamque medicinam ad causas revocando coniecturae fecit*).\textsuperscript{114}

\textsuperscript{112} Again, this may simply be a dig at the Greeks, who were often seen by the Romans as soft and effeminate and evidently neither suited nor inclined to physical exertion and discomfort.

\textsuperscript{113} *HN* 26.7.

\textsuperscript{114} Pliny’s initial take on Asclepiades seems strangely positive for someone who has been promoting the importance of personal experience and fieldwork over and above learning via verbal or written instruction. Asclepiades’ work was so sophisticated and astute in its brilliance and novelty that Pliny cannot help but be impressed, even if he does not necessarily agree. This attitude will soon change dramatically.
Asclepiades identified five general principles for health and the treatment of ills. These were: abstention from food; abstention from wine; massage; walking; and short trips to promenade around (abstinentiam cibi, alias vini, fricationem corporis, ambulationem, gestationes). Pliny is neither derisive nor supportive of these principles, these literal “things” (res), because they require no equipment, money, or expensive treatments. They are so common as to qualify as banal and even pointless. However, when it comes to the effects that these remedies had on the people of Rome, Pliny turns to more overt derision. In particular, he calls Asclepiades’ preferred remedies of wine and cold water an “empty artifice”, by which he was accustomed to draw the minds of men to him (trahebat praeterea mentes artificio inani iam vina promittendo aegris dandoque tempestive, iam frigidam aquam). But, it turns out, Asclepiades

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115 quinque res maxume communium auxiliorum professus. See Webster (2015) for an analysis of the Methodist sect of physicians, who rejected both the Hippocratic rationalist approach to medical diagnoses and the empiricist approach, which were focused on aetiology, in favor of three simplified, non-causal “manifest commonalities”. Asclepiades in particular used the rhetorical method of metalepsis, in which metonymy is used in inappropriate places, as when, e.g., he defines “plague” as “an unusual condition of living creatures in the particularly affected locality, because of which [condition] they are prone to be visited with deadly diseases arising from a common cause,” per Caelius Aurelianus (Webster 2015: 665). Basically, Asclepiades defines plague as “an unusual condition” because of which people are stricken with disease (also plague), which have a common cause (plague).

116 Pliny’s summary (26.7.13) of their reception in Rome could be taken as tongue-in-cheek. He says that despite realizing that they could have come up with such ideas on their own, nevertheless, Asclepiades was applauded and won over nearly the whole of humanity, quae cum unusquisque semet ipsum sibi praestare posse intellegaret, faeventibus cunctis velut essent vera quae facillima erant, universum prope humanum genus circumegit in se non alio modo quam si caelo demissus advenisset. (“When every single person suddenly and at the same time realized that he himself could have these principles ready to hand for himself, and when everyone was praising him, just as though that which was easiest to hand were also the truth, he brought nearly the entire human race around to his side, just as if he had arrived because he was sent from heaven.”)

117 26.8.14. “Meanwhile, he used to draw their minds to him with this silly artifice, sometimes promising wine to sick people and giving it out at every opportunity; and other times, administering cold water.”
was not entirely original, because Herophilus\textsuperscript{118} had investigated the causes of diseases first, and Cleophas had recommended wine as a remedy long before and so, wanting to make a name for himself, Asclepiades preferred to be called the “giver of cold [water],” as Marcus Varro claims (\textit{ipse cognominari se frigida danda praeferens, ut auctor est M. Varro}).\textsuperscript{119} This epithet is noteworthy in that it was apparently insufficient for the famed Asclepiades to simply be called \textit{medicus}, as were other physicians. He needed something more distinctive, which would ensure the endurance of his legacy.

Pliny continues to enumerate other Asclepiadian remedies, which he calls \textit{blandimenta}, since they were based on the simple pleasures in life, such as bathing, sleeping, eating, and drinking. So obvious are these remedies that were it not for a few “miracles” performed by Asclepiades,\textsuperscript{120} Pliny is sure that his fame would not have endured. Indeed, he is only angered by the fact that a man “from a most superficial group” (\textit{e levissima gente}), who was inspired by the desire to make more money for himself with no resources, all of a sudden gave to his fellow humans rules for health.\textsuperscript{121} The \textit{levissima gens} in question includes rhetoricians, whom Pliny

\textsuperscript{118} This is Herophilus of Calchedon (335-280 BCE), who along with Erasistratus of Ceos (c.304-c.250 BC) founded a school of anatomy in Alexandria.

\textsuperscript{119} The gender and number of the appellation, \textit{frigida danda}, is odd, since it is neuter accusative plural, and thus literally means “cold things that must be administered”. Technically, Asclepiades’ preferred \textit{cognomen} is not active, signifying the one administering remedies, but passive, signifying the remedies themselves. The Loeb edition has the following note: “Asclepiades was actually nicknamed ‘wine-giver’. See Anonymus Londinensis XXIV 30 Ἀσκληπιάδης ὁ οἶνοδώτης.”

\textsuperscript{120} Pliny tells of an incident whereby Asclepiades is supposed to have saved a man’s life by plucking him from his own funeral pyre.

\textsuperscript{121} id solum possumus indignari, unum hominem e levissima gente sine opibus ullis orsum vectigalis sui causa repente leges salutis humano generi dedisse.
considers vainglorious, at least in comparison to trained physicians who save lives. The rules of Asclepiades, however, were afterwards denigrated by many people (*quas tamen postea abrogavere multi*). The one thing that Asclepiades accomplished that Pliny is willing to praise is that he did away with questionable and torturous treatments such as extreme heat and perspiration,\textsuperscript{122} emetics, and even shoving instruments down someone’s throat to treat quinsy. Asclepiades also condemned the ingestion of draughts that were harmful to the stomach, an opprobrium of which Pliny approves and which he cites as the reason why he himself now recommends treatments that do not cause stomach upset, but are “useful” (*itaque nos in primis quae sunt stomacho utilia signamus*). Thus, Pliny’s treatment of Asclepiades involves begrudging approbation of certain remedies that he promoted. But Pliny disapproves of the way Asclepiades came to his conclusions. He was only correct by happenstance, like a stopped clock. He did not have the requisite training and his precepts therefore must be viewed askance.

Pliny focuses primarily on Asclepiades’ lack of experience, but his association with the Methodists and their refusal to draw any causal connections between disease and symptom was also an issue for other physicians. Galen references Asclepiades numerous times in his *On the Natural Faculties* (*ONF*),\textsuperscript{123} in which he sarcastically notes that certain of his (and Erisistratus’) theories were due to the heights of wisdom they had reached.\textsuperscript{124} Galen provides an in-depth

\textsuperscript{122} These were replaced by steam baths.

\textsuperscript{123} Galen had evidently discussed Asclepiades at length in a now lost work, to which he refers at *ONF* I.xii.

\textsuperscript{124} Ἑρασίστρατος δὲ καὶ Ἀσκληπιάδης εἰς τοσούτον ἰκουσί προφίας, ὡστ’ οὐ μόνον τὴν κοιλίαν καὶ τὰς μήτερας ἀποτεροῦσί τῆς τοιαύτης δυνάμεως ἄλλα καὶ τὴν ἐπὶ τῷ ἄτομῳ κύστιν ἅμα τοῖς νεφροῖς. (“Erasistratus, however, and Asclepiades reached such great wisdom that they robbed not only the stomach and the womb of this capacity but also the bladder, which is by the liver, and the kidneys as well.”) A note on the medical terminology here: Galen, quoting
explanation of Asclepiades’ theory of kidney stones, followed by his own derisive take on it

(ONF 1.xiii):

Ἀσκληπιάδην δ᾿ οἶμαι μηδὲ λίθον ούρηθέντα ποτὲ θεάσασθαι πρὸς τῶν οὕτω πασχόντων μηδ’ ές προηγήσατο κατά τήν μεταξὺ τῶν νεφρῶν καὶ τῆς κόστεως χώραν οὔνην τις άξεια διερχομένου τοῦ λίθου τόν ούρητηρα μηδ’ ές ούρηθέντος αύτοῦ τά τε τῆς οὔνης καὶ τά τῆς ἰσχυρίας ἐπαύσατο παραχρήμα.

It is my belief that Asclepiades never observed a stone that had been passed by one of those suffering from this ailment, or that a sharp pain preceded it in the space between the kidneys and bladder as the stone passed through the ureter, or that, once the stone had passed, the symptoms of both the pain and the urine retention immediately ceased.

Galen therefore has the same general criticism of Asclepiades as does Pliny, namely, that he is inexperienced and tries to explain physical ailments by reference to theories rather than experience. Had he ever actually treated patients and paid attention to their symptoms, he would have made the connection between abdominal pain in a certain area, the cessation of that pain, and the passing of kidney stones. Galen goes on to give an explanation of Asclepiades’ theory of how urine is formed in the bladder from the liquids we ingest, which he sees as blatantly incorrect, and sums up with the following conditional, “if he had ever studied anatomy, he would have immediately known…” (ἀλλ᾿ εἴπερ ἀνατετμῆκε ποτέ...τάχ᾿ ἃν ἥπιστατο). The combination of the adverb τάχυ (i.e., ταχέως) and the imperfect + ἀν construction makes it clear that knowledge of biology that is gained through experience and not deduced from first principles is not only preferred, but actually makes for a better doctor. The ἴστρός who can marry experience of cause and effect, as in the relationship between a kidney stone’s passing and the kinds of abdominal pain that precede it, with theoretical knowledge deserves the title of

Hippocrates, uses στόμοσχος (stomachos) for the cervix, as in the entryway to the womb, the term for which is μήτρα (mē tra). Galen then uses κοιλία (koilia) for “stomach”.

58
“Healer”. For Galen, the moniker “Asclepiades the Physician” (Ἀσκληπιάδης ὁ ἱατρός) is therefore both tongue-in-cheek and undeserved. It underscores the fact that he has no real claim to such a title, while also exposing the affectation of the appellation that both Pliny and Varro claim he wanted: “Asclepiades the Wine-Giver”, or “Asclepiades the Water-Giver”, is almost comically accurate: he may provide remedies, but he is no true physician.

There are other places where Galen makes his opinion of Asclepiades’ methods known. At ONF 1.xiii.42, he says that Asclepiades is so married to his elements on which he bases his theories that he cannot admit the truth about drugs. “He believed that agreement with the truth of such things was abandonment of the proofs that he had assumed.” Just a couple of paragraphs before this, Galen had explained that Asclepiades thought, in contrast to Hippocrates and other real, practicing physicians, that drugs produced bile, phlegm, and other fluids. “Nor would he agree with these individuals, but instead, he claimed that each kind of [fluid] evacuated [from the body] originated in the drugs themselves.” Galen’s response to this is to ask, both rhetorically and seriously, whether he should consider Asclepiades insane or simply inexperienced in the art of medicine. He explains how Asclepiades is only concerned with valid argumentation and with following his first principles to their logical conclusions. Asclepiades’ writings are clearly derived from their logical principles, but they are also at variance with reality (ONF 1.xiv.51ff):

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125 προδοσίαν γὰρ εἶναι νενόμικε τῶν στοιχείων ἦν ὑπέθετο τὴν ἀληθῆ περὶ τῶν τοιούτων ὀμολογίαν. Namely, the truth in question is that drugs are not the cause of the bodily fluids that are evacuated when they are administered.

126 ...μηδὲ περὶ τούτων συγχωρεῖν, ἀλλ’ ὑπ’ αὐτῶν τῶν φαρμάκων γίγνεσθαι λέγειν τοιοῦτον ἐκαστὸν τῶν κενουμένων. ONF 1.xiii.41

127 Ἀρ’ οὖν οὐ μαίνεσθαι νομιστέοιν αὐτῶν ἢ παντάπασιν ἁπειρον εἶναι τῶν ἔργων τῆς τέχνης.
If someone were to agree carefully with Asclepiades’ writings, he would learn the logical consequence of such teachings, with their first principles, but he would also learn how they conflict with sensory experience.

This is in contrast to Epicurus, who tries so hard to verify his experiences that he attempts to make them adhere to principle. Asclepiades is so concerned with preserving his principles that he ignores facts (ONF 1.xiv.51ff):

ο μὲν οὖν Ἐπίκουρος τὰ φαινόμενα φυλάττειν βουλόμενος ἁσχημονεῖ ἐπιτοιμούμενος ἐπιδεικνύειν αὐτὰ ταῖς ἁρχαῖς ὁμολογοῦντα: ο δ’ Ἀσκληπιάδης τὸ μὲν ἁκόλουθον ταῖς ἁρχαῖς φυλάττει, τοῦ φαινομένου δ’ οὐδὲν αὐτῷ μέλει.

Epicurus, on the other hand, wishing to preserve his experiences, disgraces himself, because he prides himself on proving any experiences that conform to his first principles; whereas Asclepiades defends whatever is logically consequent to his first principles and so has no interest in any of his experiences.

Fortunately, Galen cites Menodotus the Empiricist, who has thoroughly refuted Asclepiades and has shown how his tenets not only do not correspond to reality, but even contradict each other (ONF 1.xiv.51ff):

καίτοι τὰ μὲν Ἀσκληπιάδου Μηνόδοτος ὁ ἐμπειρικὸς ἀφύκτως ἐξελέγχει, τήν τε πρὸς τὰ φαινόμενα μάχην ὑπομνήσκων αὐτὸν καὶ τήν πρὸς ἄλληλα.

Moreover, Menodotus the Empiricist utterly refuted Asclepiades’ precepts, suggesting that they are in battle both with actual experience and with one another.

We can therefore identify at least three ancient authorities who questioned not only Asclepiades’ motives, but also his methods and preconceptions: Pliny, Galen, and Menodotus. If Pliny is to be believed, the Roman people themselves eventually caught on to Asclepiades’ lack of experience, but it is unclear if this preceded or followed the translation of his Precepts into Latin. It is possible that he was practicing medicine of some sort in Rome, but that once his tenets were
available in a language other than Greek, their variance with common sense and traditional
cmedicine precipitated the decline in his popularity.

**Theophrastus**

Pliny’s discussion about Asclepiades’ insistence on deduction from first principles (his στοιχεῖα
and δόγματα) points to another Greek writer, Theophrastus of Eresus. However, where
Asclepiades employs questionable methodology and his background in rhetoric to exploit the
people of Rome, Theophrastus was philosophically trained and relied on observation for his
inferences. In his two extant works on plants, *Historia Plantarum* (HP) and *De Causis Plantarum* (CP), Theophrastus mimics a technique of classifying animals that had been used by
Aristotle in one of his works, *History of Animals*. Theophrastus also employs Aristotle’s
technique of delineating the shared and common characteristics of animals in a secondary work:
he identifies and classifies plants in *HP*, then describes their commonalities and patterns in the
later work *CP*. First, classify and disambiguate. Second, group by common characteristics. Part
of the issue that both Galen and Pliny have with Asclepiades is that he skips the first step and
goes straight to the second, by trying to provide the underlying patterns of diseases and their
plant remedies. Or he reverses the process and tries to move from common characteristics and
first principles to the individual classification process. In contrast, Theophrastus begins the
*Historia Plantarum* thus (HP 1.1):

Τῶν φυτῶν τὰς διαφορὰς καὶ τὴν ἄλλην φύσιν ληπτέον κατὰ τε τὰ μέρη καὶ τὰ πάθη
καὶ τὰς γενέσεις καὶ τοὺς βίους.

One must take into account the differences in plants and also their nature, as these
concern their parts, their qualities, their origins, and their life cycles.

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128 In a medicinal context, this would include the diagnosis of a patient.
Theophrastus makes it clear that the proper method for laying out and classifying individual plants, or more specifically, the differences between the various natural states of plants, is to take into account their parts as opposed to the whole and their conditions, their πάθη, i.e., that which happens to them. However, this is not enough. One needs also to consider their origins and their life span, their βίος, or mode of living. Theophrastus spends the remainder of Book 1 going through the ways in which plants differ in these classifications; how trees differ according to their leaves, seeds, bark, growth habits, etc., and so on for the other kinds of plants. In Book 2, he discusses the various ways in which plants are propagated and their various origins (HP 2.I.1):

Αἱ γενέσεις τῶν δένδρων καὶ ὅλως τῶν φυτῶν ἢ αὐτόμαται ἢ ἀπὸ σπέρματος ἢ ἀπὸ ῥίζης ἢ ἀπὸ παρασπάδος ἢ ἀπὸ ἄκρεμόνος ἢ ἀπὸ κλωνός ἢ ἀπ’ αὐτοῦ τοῦ στελέχους εἰσίν, ἢ ἔτι τοῦ ξύλου κατακοπέντος εἰς μικρά· καὶ γὰρ οὕτως ἑνία φύεται.

The origins of trees and plants in general are either spontaneous or from seed, from a root, or from a cutting, from a branch or twig, from the trunk itself, or even from cutting the wood into small pieces (for some are also produced in this manner).

This can be taken as a literal application of the theory of first causes, which both informs and constitutes Theophrastus’ methodology. Here, individual plant descriptions serve as instances of praxis in support of a theory. Rather than separate out the plant descriptions from his explanations of the ways in which they differ according to parts, origins, growth habits, etc., Theophrastus incorporates individual plants as examples. For instance, while discussing the ways in which plants can suddenly change their form or growth habit, he explains that celery is affected by the way in which it is cultivated. After the seeds of celery are sown, if they are stepped on and rolled into the earth, the plant will grow in curly (HP 2.IV.3):

129 In the literal sense of production or generation from seed.
Also, in garden herbs, change is produced through cultivation; for example, if celery is sown, trodden upon and rolled in [to the soil], they say that it germinates in a curly form.

In this way, Theophrastus manages both to describe the cultivation and general characteristics of celery and to verify the premises underlying his methodology: plants can be produced from seed, but their growth habits can be manipulated after the fact. In the absence of Asclepiades’ Precepts, one might therefore substitute them with what we know of Theophrastus, since their methods of approaching herbs have a similar methodology. However, Theophrastus was not a practicing medic, but a philosopher and the successor to Aristotle. His status as a Peripatetic places him in opposition to Asclepiades’ original training in rhetoric. Where Theophrastus was engaged in philosophical inquiry, Asclepiades was engaged in the art of persuasion. Nevertheless, Pliny’s reactions to both Greek thinkers can be compared and contrasted.

Pliny refers to Theophrastus no less than 70 times at various places in the Historia Naturalis, especially in regard to stones, earth, natural wonders, buildings, etc., with a large proportion in Book 36, where Pliny sees him as an authority on minerals.

Some of these citations demonstrate both how Pliny interacts with Theophrastus as an ancient authority and how inconsistent nomenclature creates confusion, even between two languages. For instance, Pliny apparently mistakes the Greek name crataegos (or crataegon), which Theophrastus describes as a kind of thorn, for Aquifolium (HN 27.40):

Theophrastus arboris genus intellegi voluit crataegon sive crataegona, quam Itali aquifolium vocant.

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130 See, e.g., 36.29, where Theophrastus and Mucianus are cited for the idea that stones can generate other stones: Idem Theophrastus et Mucianus esse aliquos lapides qui pariant credunt.
Theophrastus wanted the genus of tree to be known as either crataegos or crataegon, which the Italians call Aquifolium.

The passage in Theophrastus is from *HP* II.15.6, the first line of which reads: \( \Pi \lambda \varepsilon \beta \varepsilon \iota \delta \varepsilon \pi \omega \lambda \upsilon \kappa \rho \alpha \tau \alpha \iota \gamma \omega \varsigma \varepsilon \omega \tau \iota \nu, \omega \iota \delta \varepsilon \kappa \rho \alpha \tau \alpha \iota \gamma \omega \omicron \nu \alpha \kappa \alpha \lambda \omicron \omicron \sigma \iota \nu. \) Pliny is correct in transliterating the Greek name to Latin, but was apparently mistaken in identifying the tree described by Theophrastus as Aquifolium. Theophrastus compares the features of *crataigos* to another tree called \( \mu \varepsilon \sigma \pi \iota \lambda \varsigma, \) or the Medlar tree (*Mespilus germanica*). Even in Pliny’s time, then, the name *Aquifolium* was associated with an entirely different tree,\(^\text{131}\) an example of one of the Plinian errors that would much later be of such concern for the Italian humanists.

In Book 26, Pliny is describing the plant *Satyrion* and how many people believe that the roots have aphrodisiac qualities if consumed. When Pliny cites Theophrastus’ claim that this plant can allow for copulation 70 times in a row, he also notes that Theophrastus does not explicitly name *Satyrion* (*HN* 26.63):

\[
\text{prodigiosa sunt quae circa hoc tradit Theophrastus, auctor alioqui gravis, septuageno coitu durasse libidinem contactu herbae cuiusdam cuius nomen genusque non posuit.}
\]

Prodigious are the claims that Theophrastus, an author of no uncertain gravity, hands down about this plant. But in the case of someone’s libido enduring for 70 instances of copulation because of contact with a certain herb, he did not actually affix a name and genus to it.

In this case, Pliny does not appear to question the plant’s known aphrodisiac properties, simply the fact that Theophrastus, a serious author (*auctor alioqui gravis*), has clearly exaggerated these

\(^\text{131}\) This mistake is pointed out by the Loeb editors: “See Theophrastus, *H.P.* III 15, 6. The tree described there is a type of thorn, perhaps *Crataegus Heldreichii*. But *aquifolium* is our holly. A mistake apparently of Pliny.” Moreover, regarding the Latin *crataegon*, the apparatus criticus notes that this is corrected in certain editions and manuscripts: “*crataegon* Hard. e *Theophrasto*, Mayhoff: *crataegonon* Detlefsen *cum multis codd.*”
effects. While Theophrastus parroted the idea that a certain plant had copulative powers, he did not specify which plant. He did not provide a *nomen* or a genus, which meant that the plant could not be identified. At *HP* IX.18, Theophrastus says of Ἄθολφονον, or wolf’s-bane, that it is called Scorpion-plant, *σκορπίον*, because its root looks like a scorpion. He lists some of its supposed effects, such as killing an actual scorpion, which can then be revived with white hellebore. Theophrastus then says that fabulous tales come about for a reason (καὶ τὰ μυθώδη δὲ οὐκ ἀλόγως συγκεῖται). This is not an exact comparison, but it does reflect Pliny’s summary of Asclepiades’ *magicae vanitates*, namely, that there is something of truth in them (*coguntque confiteri multum esse veri quod supersit*). In Theophrastus’ case, there may not be philosophical truth in these fantastic stories, but there is some purpose, some logic underlying their existence. Thus, where Pliny denigrates Asclepiades for his poor methods, lack of experience, and

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132 The passage in question is at *Historia Plantarum* IX.18.9, but unfortunately, the exact details are omitted from the Loeb edition. Contextual note: Theophrastus discusses the medicinal uses of herbs in Book IX of *HP*.

133 This is an example of the doctrine of signatures, which states that the curative powers of a plant, or any natural object, can be discovered by reference to the body part it resembles. Bennett (2007) traces its historical origins and locates it in both Pliny and Dioscorides. For example: “The herb *Scorpius* resembles the tail of the scorpion and is good against his biting” (Dioscorides 2000). In the case of Pliny, Bennett does not provide an actual citation, but rather references the 2006 *Encyclopedia Britannica* entry on the doctrine of signatures. This is because, in fact, Pliny does not explicitly aver the doctrine, though there are numerous instances in Books 23-27 where he references or hints at it. For example, *HN* 23.16, regarding the herb *bryony* (*Bryonia dioica*), which Pliny notes is a white vine (*Vitis alba est quam Graeci amnelon leucen, alii staphylen, alii melothron, alii psilotrum, alii archezostim, alii cedrosin, alii madon appellant*). One of its medicinal uses, once mixed with water, is to extract splintered bones, for which reason it is often called “white bryony” (*illa vis praeciea quod ossa infracta extrahit in aqua inposita ut bryonia, quare quidam hanc albam bryoniam vocant.*) Bennett argues that the doctrine of signatures was a mnemonic for disseminating knowledge in pre-literate and pre-scientific societies.

134 Literally, “myths are not composed for no reason.”
questionable motives, he begrudgingly admits that there could be something of value in his Precepts precisely because Theophrastus, for whom Pliny has respect, sometimes indulges in similar tales. However, we cannot assume from this that Pliny is a proponent of such stories. At 25.6, Pliny explains how he will avoid delineating the properties of poisonous herbs, or plants the use or ingestion of which have what he deems criminal, or magica portenta. In particular, Pliny assigns love potions and abortive plants to this genre, declaring that faith in such things must be condemned.\textsuperscript{135}

1.5 Magical Properties of Herbs & Magicae Vanitatis

At Book 25.5, in the middle of his rhetorical digression on the transmission of medicinal knowledge, Pliny muses on the fact that in antiquity, herbs were marveled at and therefore associated with magic. He remarks that nothing was more wondrous than the study of plants (\textit{neque aliud mirata magis antiquitas reperietur}). This is all the more frustrating for Pliny because, he says, despite the fact that in antiquity the basic principles of astronomy were already known, in his own day and age the movements of the heavens were still frequently attributed to and explained by reference to magic, herbs, and superstition. This relationship between wonder and magic (and other unscientific methods and principles) and the skill of knowing and applying medicinal herbal lore is crucial. Pliny is lamenting the fact that humankind already possesses the ability to think rationally about herbs, but has instead chosen to relegate skill with them to the

\textsuperscript{135} \textit{Ego nec abortiva dico ac ne amatoria quidem, memor Lucullum imperatorem clarissimum amatorio perisse, nec alia magica portenta, nisi ubi cavenda sunt aut coarguenda, in primis fide eorum damnata.} The Hippocratic Oath no doubt plays a role in Pliny’s take on abortifacients: οὔ δύσω δὲ οὔδε φάρμακαν οὔδενι αἰτήθεις θανάσιμον, οὔδε ὑφηγήσομαι ξυμβουλήν τοιήνδε· ὁμοίως δὲ οὔδε γυναικὶ πεσσὸν φθόριον δύσω. (“I will neither give to anyone a lethal drug, if I am asked, nor will I instruct anyone in such a plan; and similarly, I will not give a woman an abortive pessary.”)
realm of magic and superstition, both of which have long been treated as the province of women. Pliny reviews some of the myths about herb lore in Italy and Egypt, citing Medea and Homer’s Helen, specifically, as famed proprietresses of plant-based drugs. Yet it was a man, Orpheus, who first wrote about them. He was followed by Museus and Hesiod, who spoke of the herb *polium*; by Homer, Pythagoras, and Democritus; by Xanthus, who tells of an herb called *balis*, which brought one Tylo back to life after a snake-bite; by Juba, who wrote about another plant with the same power, though Pliny does not specify which (and perhaps Juba did not). Pliny sums up these accounts by stating that, though they are wondrous, there is still some element of truth in them (*HN* 25.5):

> quae etiamsi fide carent, admirationem tamen implent coguntque confiteri multum esse veri quod supersit.

These accounts, even though they lack any credibility, nevertheless fill one with admiration and force one to admit that there is a whole lot of truth that remains in them.

Pliny’s language in this sentence is worth a few remarks. As Brunfels would do 1500 years later, Pliny uses religious terminology out of place. These accounts of magical herbs are not described as literally marvelous, but as lacking faith, *fides*. Likewise, they do not fill us with wonder, but admiration, *admiratio*, which implies a similar level of unscientific belief as in religious awe. Moreover, they force us to admit (*coguntque confiteri*) their relative truth. The verb *confiteor* implied even by Pliny’s time, “a sacrifice of will or a change of conviction.” Based on this

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136 *durat tamen tradita persusacio in magna parte vulgi veneficiis et herbis id cogi eamque unam feminarum scientiam praevalere.*

137 *primus autem omnium quos memoria novit Orpheus de herbis curiosius aliqua prodidit.* ("Orpheus, being especially curious about herbs, was the first of all those whom memory knows to have produced anything [of note].")

138 *per Lewis & Short.*
forced assumption, namely, that there is some truth in even fantastic accounts of the healing properties of herbs, Pliny reasons that in the authorities, the consensus is that plants can achieve almost anything, but that unfortunately, these healing properties are still largely unknown for the vast majority of plants (HN 25.5):

   inde et plerosque ita video existimare nihil non herbarum vi effici posse, sed plurimarum vires esse incognitas.

Based on this, I also find that many think that there is nothing that cannot be effected through the power of herbs and that the properties of most herbs are as yet unknown.

Pliny is trying to rationalize the accounts of magical herbs by transferring the origin of their effects from the realm of magic and witchcraft to one of undiscovered knowledge. In the fantastic accounts he cites, the element of truth amounts to the medicinal effect, previously unknown and unstudied, of a simple herb.

Pliny’s understanding of magical herbs and magic more broadly is difficult to classify. Consider how Grafton (2005)\textsuperscript{139} discusses two conceptions of the works of magi, described around 1650 by the famed German polymath Athanasius Kircher (1602-1680) and his colleague Gaspar Schott. A street performer named Jean Royer had an act that played on the biblical story of Jesus turning water into wine: he would swallow large amounts of water, then regurgitate whatever liquid the audience members requested. This drew the suspicion of the Church, given the transformative nature of the illusion, and Royer was forced to prove that he did not rely on demonic forces for his act. He was observed and then interviewed by Kircher and Schott, to whom he admitted that he used sponges soaked with the liquids he regurgitated, which he kept in his mouth and then squeezed with his teeth to create streams of liquid. Kircher and Schott

provided Royer with a certificate of assurance that he did not draw on the forces of the devil, but was in fact an “artificial” magician. Kircher and Schott argued that there were two kinds of magic. In the first, magi actually have knowledge of “natural magic” and “occult properties”. In the second, magi perform “mathematical” or “artificial” magic, using “optical, hydraulic and mechanical techniques”. Both forms of magic were, Kircher and Schott claimed, practiced in antiquity, but neither account perfectly corresponds to the magical herbs described in Pliny. In Book 25, when Pliny describes the *magicae herbae*, he is referring to the widespread belief in their status as inherently magical. Thus, a person who uses them is not necessarily a magus in either of the two senses of Kircher and Schott, because there is no artifice in their deployment. In addition, as Pliny himself avers, “magical herbs” do not actually rely on magical forces, but are instead defined by properties the physical and biological attributes of which are simply unknown or inexplicable.

There is one exception, however. The first two words of Book 30, which concerns the history of magic, are *magicas vanitates*, the object of the two main verbs of the first sentence. By putting *magicas vanitates* in first position, Pliny is making it immediately clear that the subject of the chapter will be not just magic, but magical deceptions, which he has previously decried and will continue to protest (*HN* 30.1):

> Magicas vanitates saepius quidem antecedente operis parte, ubicumque causae locusque poscebant, coarguimus detegemusque etiamnum.

Indeed, in an earlier part of this text, I often refuted magical deceptions whenever the situation and occasion demanded it, and I will continue in the future to expose them.

In his discussion of Asclepiades, he had highlighted the orator-turned-physician’s association with magical herbs. For instance, at 26.9, Pliny noted that *magicae vanitates* were of greater assistance to Asclepiades than anything else (*super omnia adiuvere eum magicae vanitates*). The
result of this association of herbs with the magic arts and with Asclepiades was an annulled faith among the general populace in all herbs, even those not considered magical (in tantum evectae ut abrogare herbis fide omnis posse). Pliny goes through a short list of herbs that were said to have such magical properties. First is Aethiopis, by which streams and ponds are (reputed to be) dried up (aethiopide herba amnes ac stagna siccaris). Next is Onothuris, by the touch of which anything that is locked is (said to be) opened (onothuridis tactu clausa omnia aperiri). Third is Achaemenis, which, if thrown on enemy lines, causes them to tremble with fear and turn their backs (achaemenide coniecta in aciem hostium trepidare agmina ac terga verti). Fourth is Latace, which was customarily given by the king of the Persians to his legates, so that wherever they went, they would enjoy an abundance of everything, and many other similar effects (latacen dari solitam a Persarum rege legatis, ut quocumque venissent omnium rerum copia abundarent, ac multa similia). These four magical herbs are a problem not simply in their reputed effects, but in their very existence. Pliny asks rhetorically where these herbs were when certain defeated armies could have used them (HN 26.9):

ubinam istae fuere, cum Cimbri Teutonique terribili Marte ulularent, aut cum Lucullus tot reges Magorum paucis legionibus sterneret?

Where were they, when the Cimbri and the terrible Teutons made their war cries, or when Lucullus laid low so many of the kings of the Magi with just a few legions?

140 At Book 24.102.163, Pliny informs us that Aithiopis has another name, Merois, because it originates in Meroë in Ethiopia (Aethiopida in Meroe nasci, ob id et meroida appellari). He assumes that his reader has read this before turning to Book 25, and when he lists Merois fifth among the magical herbs, he does not bother to clarify that it is in fact Aithiopis. He says somewhat drily, using a jussive subjunctive, that the Pomptine marshes outside of Rome should be dried up and thus returned to Italy as farmland (siccentur hodie meroidae Pomptinae paludes tantumque agri suburbanae reddatur Italiae).

141 The Loeb edition has a note here about the textual variants of this herb’s name: “onothuridis Mayholf: chondridis coni. Ianus: conyendis Urlichs: coniendiis plerique codd., Detlefsen.” Thus, there is clearly variance in the codices.
Pliny’s use of the copulative *fuere* implies that the herbs exist with unsubstantiated or impossible powers, but it also insinuates that they did not even exist and were nothing more than lore.

However, Pliny does cite these herbs at various points in the *Historia Naturalis*. *Aethiopis* shows up in the very next book, at 27.3.\(^{142}\) Similarly, *Achaemenis* is mentioned at 24.102.161, just a few paragraphs before *Aethiopis*, when Pliny is listing a number of herbs described by Democritus of Abdera (c.460 – 370 BCE).\(^{143}\) Here, summarizing the atomist philosopher, Pliny says that *Achaemenis* is amber-colored, has no leaves, and acts as a truth serum when ingested with wine, causing criminals to confess due to the hallucinations it produces. It is also called *Hippophobas* because mares are afraid of it.\(^{144}\) *Onothuris* shows up in one other place, which happens to be the same as *Aethiopis* and *Achaemenis*, at Book 24.102.167. For this herb, Democritus is not the directly cited authority, but Crateuas, who, it is heavily implied, was a follower of Democritus. Thus, to the plants of Democritus that Pliny has just gone through, Crateuas added *Onothuris*,\(^{145}\) which, when sprinkled on a fierce animal, tames it (*Crateuas onothurin, cuius aspersu e vino feritas omnium animalium mitigaretur*). *Latace*, on the other hand, is not mentioned anywhere else in the *Historia Naturalis*. This is in part because the plants in question in Book 24 are the plants of the Magi. Having described them briefly,

\(^{142}\) Pliny also briefly mentions it at 27.1.2 and at 24.102.163 (citing Democritus). See the following section of this chapter for an analysis of Pliny’s entry on *Aethiopis*.

\(^{143}\) It is worth noting that Otto Brunfels does not list either Asclepiades or Democritus as authorities in his herbal.

\(^{144}\) *Achaemenida colore electri sine folio nasci in Taradastilis Indiae, quae pota in vino noxii per cruciatus confiteantur omnia per varias numinum imaginationes, eandem hippophobada appellat, quoniam equae praecipue caveant eam.*

\(^{145}\) Again, the Loeb has a note: “onothurin coni. Ianus collato Dioscoride IV. 117 (Wellmann): oenotherin Detlefsen: oenotheridem vulg.: varia codd.”
Pliny states that it should be quite sufficient to have touched thus far on the distinctive attributes that the Magi assign to herbs, other features of which he will discuss in a more fitting place (*et abunde sit hactenus attigisse insignia Magorum in herbis alia de his aptiore dicturis loco*). A footnote in the Loeb edition of Pliny that appears at this juncture cannot be overlooked:

In this chapter Pliny uses indirect speech, as if to disclaim responsibility for the truth of the account he is giving. It is awkward for a translator to represent this in a modern language, and it might have been better to prefix to the chapter a sentence to the effect that what follows is given on the authority of others.

It is true that Pliny is providing the opinions of Apollodorus on *Aeschynomene* and Crateuas on *Onothuris*, both magical plants, but this particular sentence is not itself indirect speech. Pliny is ensuring that his own audience knows that other authorities are the sources for his information about the “magical properties” of these herbs, but he cannot sidestep his own refusal to fully reject them. The plants in question evidently exist and have known benefits apart from their purported “magical” ones.

In Pliny’s opinion, Asclepiades surpassed the credulity of those ancients (*credulitatem antiquorum*) who believed in these magical herbs, by inventing a kind of medicine that further stretched the limits of “human ingenuity” (*humana ingenia*) and the practices of the Magi (*evectam ultra Magos etiam*). Pliny recognizes that a certain degree of incredulity was needed for magical herbal properties to have been taken so seriously by the Magi in antiquity. Yet the system of medicine devised by Asclepiades, with its focus on first causes and its distillation of

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146 *HN* 26.9. *Mirum esset profecto hucusque proiectam credulitatem antiquorum saluberrimis ortam initii, si in ulla re modum humana ingenia novissent atque non hanc ipsam medicinam ab Ascleiadea repertam probaturi suo loco essemus evectam ultra Magos etiam.* (“The credulity of the ancients, having advanced to this point and sprung from very sound beginnings, would truly have been a marvel, if in any situation human ingenuity had known a limit and if I were not about to show, in its own place, this very medicine invented by Asclepiades and carried beyond even the Magi.”)
the variety and complexity of medicinal remedies into five general ones, requires even more incredulity. Pliny sums up the situation with a rather oblique proclamation about the effects of the way human minds work (*haec est omni in re animorum condicio*). He claims that all things that spring from necessity lead to excess (*a necessariis orsa primo cuncta pervenerint ad nimium*). This maxim is Pliny’s justification for the content of Book 26, which consists of extra or excessive information regarding the same plants that he had discussed in Book 25, where the information was “necessary”. Yet it was in Book 25 that he also discussed a number of magical herbs and claimed that there was some truth in them. For Pliny, the existence of “magical herbs”, their identification and the investigation of their real benefits, is necessary information. The outlandish accounts of their magical properties, however, do not contribute to their “truth”, and are therefore too much (*nimium*).

In his discussion of *nomina nuda*, Pliny does not specify which herbs have such names, but one can assume that the “bare names” in question are:

a. not binomials  
b. not named after individuals, and  
c. do not have enough information encoded in their etymology to make identification possible.

The four magical herbs that Pliny discusses in Book 25 meet these criteria. The first, *Aethiopis*, is the only one that is said in Book 24 to have medicinal benefits and is also, therefore, the only one that Pliny describes in great detail in Book 27, thus providing all of the *necessary*
information for identification that is missing in the name. Based only on the name, the most one can assume is that this is some kind of herb that originates in Ethiopia, as indeed Pliny confirms (praeter Aethiopiam nascentur), while adding that it also grows on Mt. Ida and in Messenia. The fact that it is native to regions in Greece indicates that the locals would have their own knowledge of it and their own traditions and experience with using it for medicinal purposes, apart from any mythological accounts of its magical properties. These medicinal uses were likely so well known that Pliny could verify the plant’s existence and as such, it was necessary to describe it sufficiently for identification. Thus, we are told the basic physical characteristics of the leaves and stem and given a reference point for comparison, the plant Arction (similem arctio). The seeds are said to be white and paired, similar to Ervum or bitter vetch (Vicia ervilia). If this is not enough to aid in identification, the description of the roots ought to suffice, being long, fleshy, “gluey to taste”, and very hard and black when dried out. We are told the plant’s medicinal uses and then, peculiarly, Pliny says that it is the “Ethiopian kind” that is most efficacious for the various illnesses it treats (quae ex Aethiopia venit eximie atque illico prodest). This implies that the kinds of Aethiopis found in Greece are actually different

147 The following is the entry in full: Aethiopis folia habet phlomo similia, magna ac multa et hirsuta ab radice, caulem quadriangulum, scabrum, similem arctio, multis concavum alis, semen ervo simile, candidum, geminum, radices numerosas, longas, plenas, molles, glutinosas gustu. siccae nigrescunt indurescuntque ut cornua videri possint. praeter Aethiopiam nascentur et in Ida monte Troadis et in Messenia. colliguntur autumno, siccantur in sole aliquot diebus ne situm sentiant. medentur volvis potae in vino albo, ischiadicis, pleuriticis, faucibus scabris decoctae potui dantur, sed quae ex Aethiopia venit eximie atque illico prodest. (“Aethiopis has leaves similar to phlomos, large, numerous and hairy from the root on up. It has a quadrangular stem that is rough, like Arction, and concave with a number of joints. Its seed is similar to vetch: white and germinate. It has numerous roots, long, full, soft, and gluey to the taste. When dry they turn black and become hard, so that they look like horns. It grows in Aethiopia, but also on Mount Ida in the Troad and in Messenia. These are gathered in autumn and dried in the sun for a number of days so that they do not get moldy. Mixed with white wine they are a relief for menstrual problems; for sciatica, pleurisy and sore throats, they may be made into a decoction and given as a drink. But the Aethiopian variety is especially, and immediately, beneficial.”)
varieties of the same plant, in which case, the name “Aethiopis” is more accurately a species
name for some unknown genus. This leads to the question: to what plant does the term
“Aethiopis” refer? This is made more difficult to answer by the fact that it does not appear in
Celsus’ De Medicina, a peculiar omission if the plant does indeed have well-known medicinal
properties. There is an entry in Pedanius Dioscorides’ De Materia Medica for Aithiopis, which
is linked to Pliny’s Aethiopis and more specifically to Salvia aethiopis. There are similarities
to Pliny’s entry, such as the description of the stem as quadrangular, the roots being gluey to
taste, its habitat on Mount Ida and in Messenia, and the overall method of comparison to other
herbs. Yet there are substantial differences, as well, notable because Dioscorides wrote his text at
roughly the same time period as did Pliny. However, Dioscorides wrote in Greek that was later
translated into Latin and he was, unlike Pliny, a physician with experience in using and
administering herbal remedies. Nevertheless, there was likely a plant named Aethiopis that was
well-known to those in and around the field of medicine, with known variants in Greece and
Ethiopia. The imprecision of the name, however, compelled both Pliny and Dioscorides to
delineate their physical attributes along with their medicinal benefits.

This medicinal information is the “truth” that Pliny avers can be found in the magical
herbs. Asclepiades knew this perfectly well and his manipulation of the lore surrounding the
magical herbs meant that people learned to distrust all herbs. This is why Pliny saw it as
necessary to dig up and explain the truth in the ancient accounts of the magicae herbae. By

148 Nor does it appear in Columella’s Res Rusticae, though this is less surprising.

149 In the 10th-century copy owned by the Morgan Library, there is an entry for Aithiopis εκ τόν
συναξαρβσιος (i.e., taken from Dioscorides, who was from Anazarbus, Cilicia) on fols.8v-9r. See
http://ica.themorgan.org/manuscript/page/15/143825 and
http://ica.themorgan.org/manuscript/page/16/143825.
dissociating them from magicae vanitates.\textsuperscript{150} Pliny attempted to reestablish them as objects worthy of inquiry. The benefits of magic are unverified, whereas the art of medicine is empirically observable: if a remedy works or does not, this fact is not only evident in the body of the patient, but the causal connection between the two is easily identified. This is why Pliny is astounded by the marriage of magic and medicine, which developed and flourished in tandem, plenumque miraculi et hoc, pariter utrasque artes effloruisse, medicinam dico magicenque.\textsuperscript{151} The magical herbs that appear in Pliny and which cannot be found in the accounts of other ancient authorities are also valuable, since they serve as precursors to the late medieval/early modern phenomenon of alchemical herbals, in which mythical, magical, and non-existent plants proliferated. For Pliny, it was crucial to defend them as real plants with genuine, practical benefits, apart from their magical lore.

1.6 Healing

Much of Pliny’s criticism of Asclepiades’ magicae vanitates and the negative effects they had on the study of plants, which became guilty by association, can be summarized as advocacy for a moral stance on the role of medicine. A physician must diagnose and heal, not experiment on patients by testing out hypotheses, using innocent plants to do so. This stance is also evident in the language of healing, of which Pliny makes liberal use throughout the Historia Naturalis, with the bulk being found in those books that deal with plants. This is due to the fact that one of the primary functions of plants is medicinal, and, as we have just seen, Pliny is keen to distinguish between medicine and magic. Thus, the language of the former is distinct from that of the latter,

\textsuperscript{150} These can be loosely defined as both the reason for which Asclepiades employed herbs (fame and glory) and the methods he employed (illusion and deception).

\textsuperscript{151} HN 30.2
and reveals another crucial distinction in his work, between plants that heal and physicians that heal. This distinction is not stated overtly and has to be discerned via analysis of the language of healing. For example, some of the most common verbs of healing that appear in the Historia Naturalis are sano\textsuperscript{152}, medeor\textsuperscript{153}, saluto\textsuperscript{154}, traho\textsuperscript{155}, glutino\textsuperscript{156}, solvo\textsuperscript{157}, prosum\textsuperscript{158}, inhibeo\textsuperscript{159}, and emollio.\textsuperscript{160} Thus, in addition to the expected and literal action of healing, Pliny also employs

\begin{footnotesize}
\begin{enumerate}
\item See, e.g., HN 16.251 (regarding the Druids): omnia sanantem appellantes suo vocabulo, sacrificio epulisque rite sub arbores comparatis duos admovent candidi coloris tauros quorum cornua tūm primum vinciantur; 26.146: orces radices hoc amplius et cacoethe cum mel., sicca et recentes per se vulnera, onothera efferantia sese ulcerata sanat; 27.6: immo vero etiam ferarum remedia antiqui prodiderunt demonstrando quomodo venenata quoque ipsa sanarentur.
\item 21.127: medentur contra lichenas et lepras; 32.130: percarum vel menarum capitis cinis sale admissa et con⇒a oleoque volvae medetur…; 31.96-97 (regarding Allex): …et ipsa tamen non nullius usus in medendo. nameque et allece scabies pecoris sanatur infusa per cutem incisam, et contra canis morsus draconis verum prodiderunt demonstrando quomodo venenata quoque ipsa sanarentur.
\item 20.243: virillis vitiis tusum cum melle mire prodest. lichenas purgat ex aceto, ruptis, convulsis, spasticis, nervis salutare; 21.78: ergo malvae suco aut foliorum hederae perungui salutare est vel percussos eas bibere; 24.71: dentium dolori, aurium decoctum eorum salutare est.
\item 20.243; 22.141 (regarding beans): lomento quoque ex aceto decocto tumores maturat atque aperit, item livoribus, combistis medetur. voci eam prodesse auctor est M. Varro; 31.96-97.
\item 22.137: Amylon hebetat oculos, et gulae inute contra quam creditur. item alvum sistit, epiphoras oculorum inhibet et ulceras sanat, item pusulas et fluctiones sanguinis. genas duras emolliit.
\item 22.137: ^ See above.
\end{enumerate}
\end{footnotesize}
verbs that refer to the methods of the art of medicine, such as the “drawing off” of blood, 
humors, and poisons (e.g., e mulso potae inutilem sanguinem cum alvo trahunt, HN 21.127, 
regarding lily roots), or mending wounds (glutino). Less obviously medicinal are verbs that 
indicate soothing or prevention, such as emollo and inhibeo, or simply having some benefit, as 
with prosum. Common adjectives are efficax, utilis, salubres, contrarius, adversus, and salutaris. At times, he uses terms such as supervacuus to indicate that a plant or its parts, 
which in other plants are used for medicinal purposes, are not useful. The adjective medicus is 
often paired with usus or effectus to refer to medicinal benefits, as in 22.81 (et frugum quidem 
haec sunt in usu medico) and 19.62.189 (vera autem cuiusque natura non nisi medico effectu

161 22.103 (laser): ab aegritudine recreationi efficax in cibo, tempestive enim datum cauterei vim optinet, adsuets etiam utilius quam expertibus. exerta corporum indubitatas confessiones habent. venena telorum et serpantium extinguit potum; 22.27 (regarding white and black beets): XXVII. Nec beta sine remediis est utraque: sive candidae sive nigrae radix recens et madefacta suspensa funiculo contra serpentium morsus efficax esse dicitur, candida beta cocta et cum alio crudo sumpta contra taenias, nigrae radices in aqua coctae porriginem tollunt, atque in totum efficacior esse traditur nigra; 24.47: populi ferunt et in foliis guttum ex qua apes propolis faciunt. gutta quoque ad quae propolis ex aqua efficax; 25.68 (regarding a type of Centaury): origano simile, angustioribus et longioribus foliis, angulosus caule palmum alto, fruticante, flore lychnidis, radice tenui et supervacua, suco efficax.

162 22.103 (laser): See above; 22.137: LXVII. Amylon hebetat oculos, et gulae inutile contra quam creditur; 23.75 (regarding lees of oil): cruda amurca podagros foveri utilisimum.

163 21.124: ungues rosae epiphoris salubres sunt; ulcera enim oculorum rosa sordescunt...

164 23.65: fungorum naturae contraria est pota, sed magis cruda.

165 23.65: in vino autem adversus strangurias bibitur.

166 31.65 (regarding sea water): quin et ad ictus venenatos salutaris intellegitur,

167 25.68 (regarding a type of Centaury): origano simile, angustioribus et longioribus foliis, angulosos caule palmum alto, fruticante, flore lychnidis, radice tenui et supervacua, suco efficax; 27.99: Phyteuma quale sit describere supervacuum habeo, cum sit usus eius tantum ad amatoria.
pernosci potest). The nouns in Pliny are more straightforward and include medica, medicina, medicamenta, remedia, vim, sanitas, vulnus, cicatrix, morbus, usus, effectus, and dolor.

As can be seen from these examples, despite the fact that Pliny editorializes in Book 25 about the morality of healing for physicians, a large proportion of the examples of the language of healing appear in Books 21 through 23. Yet the term medicus, which roughly corresponds to either “doctor” or “medical professional”, is more evenly dispersed throughout the 37 books. There is a simple explanation for this. Pliny almost invariably uses the term medicus in the nominative singular as an epithet, as in Apollodorus medicus (14.9) or Heraclides medicus (22.8). He does not necessarily use the term in the immediate context of the medicinal properties of a particular plant. Thus, Diocles medicus (21.35) is credited, along with the people of Sicily, with calling a plant known as Sampsucum in Egypt and Syria, “Amaracum” (sweet marjoram). The nominative plural medici is far more frequent, appearing some 44 times, where the singular only appears 15 times. Pliny often lumps medical professionals together when he has some disagreement with their methods or teachings. At other times, he does so when he simply cannot claim that one particular individual was the authoritative source of some belief. As an example of the latter case, at 31.47.124, when discussing sponges (spongeae), Pliny says that physicians claim (medici adfirmant) that those that grow facing the northeast are preferable to

168 See, e.g., 7.53; 7.37; 14.9; 22.63; 25.39; 21.35; 22.8.

169 There is a notable exception, at 14.17, when Pliny quotes M. Varro on wines that were popular in his youth: C. Sentius, quem praetorem vidimus, Chium vinum suam domum inlatum dicebat tum primum cum sibi cardiaco medicus dedisset. (“Gaius Sentius, who was praetor in our time, also used to say that the first time that Chian wine entered his house was when the doctor had prescribed it for him for heartburn.”)

170 Amaracum Diocles medicus et Sicula gens appellavere quod Aegyptus et Syria sampsucum.
others and that their breath lasts longer.\footnote{quin et eas quae ab aquilone sunt genitae praefecta ceteris, nec usquam diutius durare spiritum medici adfirmant.} Later, however, at 31.47.124, Pliny notes that physicians have incorrectly identified only two kinds of sponge, one from Africa, which is firmer and more robust, and one from Rhodes, which is softer \textit{(medici inscitia ad duo nomina eas redagere, Africanas, quarum firmius sit robur, Rhodiacasque ad fovendum moliores)}. Yet, says Pliny, other kinds of soft sponges have been identified in other regions. Similarly, he uses \textit{medici} to make moral judgements on the profession, as at 26.3, when he is discussing the skin disease \textit{mentagra} and notes that it spread in Rome, especially among the nobility. Physicians who specialized in the disease came from Egypt, whence it originated, and charged incredibly large sums for their expertise \textit{(adveneruntque ex Aegypto genetrice talium vitiorum medici hanc solam operam adferentes magna sua praeda)}. In the oblique cases, the same observations can generally be made regarding the use distinction between the singular as an epithet\footnote{See Book 1 for a large number of examples of the dative \textit{medico}; throughout the book, Pliny lists several physicians as authorities. See also 27.14, regarding the plant \textit{Anonymus: adefertur e Scythia, celebrata Hicesio non parvae auctoritatis medico, item Aristogitoni}. (“It is sourced from Scythia, having been lauded by Hicesius, a physician of no little authority, and by Aristogiton.”) The accusative \textit{medicum} only appears twice, at 24.28 as an epithet for Democrites and at 29.8.17-18, in indirect speech embedded in an \textit{ut} clause.} and the plural as a reference, often critical,\footnote{There are exceptions. See 23.27 for a description of how M. Agrippa was cured of gout by one of his physicians \textit{(unius medicorum portentosa scientia)}.} to the profession of medicine as a whole. For example, at 25.28, Pliny remarks of the plant \textit{Linozostis} that Hippocrates had recommended it for women \textit{(mulier um usum)}, but that no physicians recognize this application \textit{(ad hunc modum medicorum nemo novit)}. Similarly, at 26.4, we are told of a Laecanius Bassus, who perished from carbuncles thanks to the ignorance of his doctors \textit{(ille medicorum inscientia sectus)}, and at 26.78, Pliny
declares that fistulas are the result of a lack of skill in surgery (*fistulae quoque in omni parte serpunt medicorum vitio male sectis corporibus*). Finally, at 29.5 Pliny mentions a sarcastic funerary inscription that was evidently popular, to the effect that someone had died because of the crowd of physicians (*hinc illa infelix monumentis inscriptio, turba se medicorum perisse*).\(^{174}\) Pliny was not, however, the first to pair the term *medicus* with critical modifiers. At 29.7 he quotes Marcus Cato, in a letter addressed to his son, as saying that the literature of the medical profession is corrupting, especially if accompanied by doctors themselves (*omnia conrumpet tum etiam magis, si medicos suos hoc mittet*). Cato then forbids his son to have anything to do with physicians (*interdixi tibi de medicis*).

Pliny therefore makes a distinction between healing plants and healing physicians. The healing properties of plants simply are what they are. Even if there is some debate among physicians and healers with regard to the correct use of a plant, its status as “medicinal” stands and is external to the field of medicine. A plant’s healing properties are a part of its nature, regardless of their exploitation by physicians. This is reflected in the language that Pliny uses to describe a plant’s healing properties and in the variety of adjectives and other modifiers he uses. On the other hand, when Pliny discusses physicians, the individuals who are supposed to deploy plants as medicine, the vocabulary of healing is noticeably absent, except where he takes the time to point out their failure to do their job. At the beginning of Book 29, Pliny declares that now that he has made clear the nature of a number of remedies, he needs to say something about the art of medicine itself (*natura remediornum atque multitudo instantium ac praeteritorum plura de ipsa medendi arte cogunt dicere*). He then provides a brief history of the field, starting with

\(^{174}\) Also amusing is his description of the medic Thessalus, who during Nero’s reign gained popularity by decrying Greek physicians and rejecting entirely their methods and doctrines. His monument on the Appian Way called him *iatronikes* (ἰατρονίκης, “conquerer of physicians”).
the Greeks. Throughout, he criticizes not only their methods and tenets, but also their manipulation of their knowledge of plants and their willingness to bilk their clients, who do not know any better. Moreover, many physicians were more concerned with establishing themselves via the novelty of their remedies than by their efficacy. Eventually, referring to Marcus Cato (the Elder), at 29.8, Pliny states that the elders of Rome did not condemn medicine itself, but rather the profession of medicine, because physicians charged a fee for good health (\textit{non rem antiqui damnabant, sed artem, maxime vero quaestum esse manipretio vitae recusabant}). Pliny claims that the Romans were so disgusted by this system of paying for the privilege of living that they banned Greeks from the city, including physicians (\textit{excepisse medicos}). Because of this negative experience with Greek physicians, the Romans did not pursue, alone of all the Greek skills, the art of medicine. Those few who did study it were literally deserters to the Greek side. The result is that the Romans became susceptible to the lies and deceptions of medical quacks. Because they themselves no longer possess the requisite knowledge of the art of medicine.

\footnote{\textit{For example, Charmis from Massilia, who rejected the previous trend of using hot baths, and instead convinced his patients to take cold baths, even in the dead of winter. (HN 29.5)}}

\footnote{\textit{Solam hanc artium Graecarum nondum exercet Romana gravitas, in tanto fructu paucissimi Quiritium attigere et ipsi statim ad Graecos transfugae.}}
medicine, Romans are easily manipulated and those who call themselves “physicians” have carte blanche to test out their theories on them.\textsuperscript{177}

In Book 25, Pliny’s discussion about the lost knowledge of the Greek physicians was centered on the custom of not sharing one’s information. In Book 29, he focuses on the immorality of the practitioners of the field. There is a further, subtle distinction being made by Pliny though, between experimentation and experience. The Greek physicians not only were exploitative and charged immense fees for their expertise, but they were working from first principles and a system of deduction. Unfortunately, this meant that when they applied their theories, they did so from a philosophical-logical perspective, according to which their remedies should have worked, but without long years of experience in the field they were in effect experimenting on their patients. This is not the same as the knowledge of plants and medicine hard-won by those dwelling in the countryside. Thus, for Pliny, although the Greeks were to blame for taking advantage of others, the Romans deserved both the treatment they got and their

\textsuperscript{177} \textit{Itaque, Hercules, in hac artium sola evenit ut cuicumque medicum se professo statim credatur, cum sit periculum in nullo mendacio maius. non tamen illud intuemur, adeo blanda est sperandi pro se cuique dulcedo. nulla praeterea lex quae puniat inscitiam capitalem, nullum exemplum vindictae. discunt periculis nostris et experimenta per mortes agunt, medicoque tantum hominem occidisse inpunitas summa est.} (“And so, by Hercules, it is only in this art that anyone who has professed himself to be a physician is trusted immediately, even though there is greater danger in no (other) falsehood. Nevertheless, we do not pay any attention to this danger, so pleasing is the sweetness of hope for each and every one of us. Moreover, there is no law that punishes deadly ignorance, and no precedent for vengeance. They learn from our dangers and conduct their experiments with our deaths, and to the physician alone there is absolute impunity to kill a man.”)
current inability to heal themselves. The Romans have put themselves into a dangerous situation by letting others do the hard work of learning about medicine. Hence the need for a Roman to take up the task of not only learning all there is to know about medicine, but to verify remedies and to write everything down in Latin. At 19.62, Pliny claims that “the true nature of a plant cannot be fully understood apart from its medicinal effect.” For Pliny, there is a connection between regaining lost knowledge of the field of medicine and knowledge of plants. Likewise, if it is paramount to write about medicine in Latin for Latin speakers, then so too is it preferable to write about plants in Latin. Once the Romans have regained this knowledge, they will, however, need to construct their own mores and best practices. Pliny makes it abundantly clear that the primary function of a physician is to heal, and secondarily to share their knowledge. If physicians followed these two precepts, Pliny would be able to use the same language of healing for them as he does for plants.

Conclusion

Three features of Pliny’s text can be identified as components of a reference sphere for Otto Brunfels’ 1530 herbal:

1. his use of binomial nomenclature (and his concern for accurate, descriptive names that assist with identification of plants);

2. his criticism of the customs of naming plants after the “discoverer” and of refusing to pass one’s knowledge down to posterity;

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178 Merito, dum nemini nostrum libet scire quid saluti suae opus sit. alienis pedibus ambulamus, alienis oculis agnoscimus, aliena memoria salutamus, aliena et vivimus opera, perieruntque rerum naturae pretia et vitae argumenta. (“This is all merited, and meanwhile, not one of us Romans is capable of knowing what is needed for our own health. We walk with the feet of others, we see with the eyes of others, we greet people with the memory of another, we even live out the works of others. And so, the treasures of Nature, and the very point of life itself, have perished.”)

179 vera autem cuiusque natura non nisi medico effectu pernosci potest.
3. his rejection of the Greek method of reasoning from causation or first principles, in favor of learning from experience.

Within the reception sphere, which also includes the 15th-century “rediscovery” of Pliny and the reactions of the Italian humanists, the first of these transforms into Brunfels’ crude system of mapping Germanic plant names onto their Latin and Greek names. The second can be seen in Brunfels’ frustration with the corruption of Pliny’s text and his concern for accurately collating medicinal herbs for the benefit of all people. The last takes the form of Brunfels’ appropriation of Pliny’s advocacy of experience over book-learning. Brunfels, as a physician, relies on his own skills whenever there is disagreement or confusion in his sources with regard to an herb’s medicinal properties. All three also constitute transformations, in and of themselves, of the ancient authorities whom Pliny cites.

Pliny’s engagement with magical herbs and his moral take on healing are not as easily located in the same reception sphere. Yet the reception sphere in question is greater than Brunfels’ herbal, and includes in its discourse the other authorities on whom Brunfels relies and on the medieval herbal tradition, all of which informed his work. The language of healing in Pliny, and the distinction that he makes between experimentation and experience, transforms in the 15th century, when the Italian humanists use the same terms to describe their own work of emending the printed editions of Pliny’s text and even Pliny himself. This phenomenon constitutes the subject matter of the next chapters. One last feature of Pliny’s text, however, is vital to the main focus of this project: the development of botanical Latin. Pliny declares more

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180 These are discussed in greater detail in Chapter 4.

181 The herbal tradition and alchemy both have clear connections to the magical herbs discussed in Pliny and to the development of botany as a science. For now, it is sufficient to remark that the role of magic and alchemy in the herbal tradition and in the increased precision of botanical nomenclature and language is not negligible.
than once in the *Historia Naturalis* that he is the first to describe plants, especially their medicinal properties, in the Latin language. He begins Book 29 with the following declaration *(HN 29.1)*:

> Natura remediorum atque multitudo instantium ac praeterorum plura de ipsa medendi arte cogunt dicere, quamquam non ignarus sim, nulli ante haec Latino sermone condita ancepsque iudicium esse rerum omnium novarum...

The nature of remedies, and the multitude of those that are present to hand and omitted, force me to say more about the art of healing itself, although I am not unaware that before now, no one has collated it in the Latin language, or that the judgment of all new things is uncertain…

If indeed Pliny was the first to write about certain plants in Latin, then his text can be said to be the *initium* and genesis of botanical Latin. Again, at 12.31, he says of the Frankincense tree that its appearance has, as far as he knows, not yet been described in Latin (*nec tamen ab ullo, quod equidem sciam, Latino arborum earum tradita est facies*). The strict truth of these claims is not the point.\(^{182}\) What matters is that they support the idea that it is possible to trace the ways in which the Latin language was used to describe and name plants and thereby provide a starting point for analysis of the slow progression to the strict rules of modern botanical Latin.

\(^{182}\) For instance, we know that Celsus’ *De Medicina* was likely written before the *Historia Naturalis*. 

Introduction

In Chapter 1, we examined Books 23 through 30 of Pliny the Elder’s *Historia Naturalis*, treating them as a reception sphere for ancient botanical authorities such as Theophrastus and Cratereus. In the process, we relied on *allelopoiesis*, a classics-centered methodology that handles the reception of ancient texts as a transformative process. We investigated the ways in which Pliny interacted with, critiqued, and transformed the methods and assumptions of earlier botanical authorities. Specifically, we identified the following features in the botanical books of the *Historia Naturalis*:

- the appropriation of ancient accounts of magical herbs;
- the language of healing;
- critique of the methods and traditions of Greek botanical writers;
- the argument for knowledge (*cognitio*) gained from experience;
- the insistence on the use of descriptive nomenclature.

These five characteristics in Pliny share a common thread: a focus on the relationship between knowability and nomenclature and therefore between language and knowledge. Pliny made much of the connection between plant nomenclature and discovery, implying that a plant with an “inferior” name, one that does not provide information for identification purposes, is unknown. Knowledge of plants\(^{183}\) is therefore dependent upon good nomenclature. Poorly named plants

\(^{183}\) Pliny defines this both by a plant’s discoverability and by the successful transmission of information about it.
cannot be correctly identified, and therefore cannot be known. Thus, the “secret” plants and “magical” herbs that he discusses in Book 25 are in fact either simply unnamed or may have been given pseudonyms.

That discussion provided the necessary background for the main focus of this project, which is the development of botanical Latin in the 16th century. The features of Pliny listed above also function as a reference sphere for the German physician Otto Brunfels’ 1530 text, *Herbarum Vivae Eicones*, for which Pliny serves as the primary ancient authoritative inspiration. Thus, Pliny’s *Historia Naturalis* was a reception text in the 1st century CE, interacting with and transforming the botanical texts that came before it. At the same time, it was the object of reception for the early botanical texts of the 16th century. However, in order to assess the reception of Pliny in Brunfels’ work, two other areas of reception need to be addressed. The first involves the transmission, preservation, and stabilization of Pliny’s text via the manuscript tradition and the earliest printed editions. All of these constitute the Überlieferungsgeschichte of Pliny’s text, the history of its transmission, and will be the focus of this chapter. The second concerns the reactions of the Italian humanist scholars to these early printed editions, and will be the focus of Chapter 3.

The Überlieferungsgeschichte of Pliny’s text can itself be broken down into two distinct steps. First, prior to the Renaissance, the manuscript tradition of the *Historia Naturalis* was convoluted and fragmentary. In the 14th century, the humanist scholar Petrarch (Francesco Petrarca, 1304-1374) purchased, annotated, and shared with his peers a manuscript of Pliny, Paris, BnF, MS lat. 6802, sparking in the process a renewed interest in Pliny as an ancient
authority. This same manuscript likely served as the reference and primary source for the editio princeps of the Historia Naturalis in 1469, printed in Venice by Johannes de Spira. A second manuscript, Paris, BnF, MS lat. 6805, also annotated by Petrarch, is credited by some scholars as the reference for the editio princeps. The second step in the transmission of Pliny’s text is therefore concerned with the first two printed editions. These are the 1469 editio princeps and the 1470 second edition, which was printed in Rome by Sweynheym & Pannartz and edited by the Bishop of Aleria, GiannAndrea Bussi. The connection between these editions of Pliny and Otto Brunfels lies with three Italian humanists, Niccolò Leoniceno (1428-1524), Ermolao Barbaro (1454-1493), and Pandulfo Collenuccio (1444-1504). Not only did they

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184 Digitized in black and white: https://gallica.bnf.fr/ark:/12148/btv1b90679875/f3.item). Paris, BnF, MS lat. 6802 was not the only manuscript of Pliny annotated by Petrarch, and is in fact one of the lesser known mss. (Reeve 2007: 133n55). Reeve claims that Paris, BnF, MS lat. 6802 has “aroused surprisingly little interest”, but the Bibliothèque Nationale de France catalog record provides an extensive bibliography on it, which is considerably longer than that for Paris, BnF, MS lat. 6805, another manuscript of Pliny, which was also owned and annotated by Petrarch, and which is thought by some scholars to have served as a reference for the first printed edition. However, there are issues with this theory, which will be explained later. These two manuscripts will be referred to as P1 (6802) and P2 (6805).


critique or defend the printed editions and Pliny himself, but Brunfels considered them to be authorities on whom his own work was dependent. Therefore, Brunfels’ herbal is a reception sphere that reacts both to the manuscript tradition of Pliny’s text and to the early printed editions of it. This chapter is therefore focused on the history of the transmission of Pliny’s text, up until the 1470 Roman edition.

This analysis is necessary in order to understand more fully how, of all the ancient texts being printed in Italy in the late 15th century, the *Historia Naturalis* provoked such intense scrutiny and debate surrounding its textual accuracy. Although it is difficult to explicitly identify the rationale behind the flurry of printed editions of Pliny in the 1470s and 80s, it is clear that there was a connection to the mid-century trend of translating Greek texts into Latin. Circa 1430, Theodore of Gaza (1378-c.1475) of Thessalonika fled Greece for Italy, where Pope Nicholas V was encouraging the translation of various manuscript texts in the libraries of Italy. In 1483, Theodore translated into Latin Theophrastus’ two botanical texts, *Historia Plantarum* and *De Causis Plantarum*. Theophrastus had heavily influenced Pliny, and later on, Dioscorides and Galen. As a result, some scholars attempt to locate the temporal origin of the science of botany in Europe in the translation of Theophrastus from the original Greek. Morton (1981) argues that Theodore “made known to the modern world the greatest achievement of ancient botany at a time when it could still be scientifically useful.” However, Morton never explicitly states how the translation of Theophrastus was the catalyst for the development of botany as a science. It is implied that Theophrastus (c. 371-287 BCE) not only predated Pliny (c. 23/24-79 CE), but that in the context of knowledge about plants, his work was also superior to Pliny’s. However,

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187 See Chapter 1 for a discussion of Pliny’s treatment of Theophrastus.

188 Morton 1981: 100. Morton’s views are more fully delineated in the conclusion to this chapter.
Theophrastus was working in the Greek tradition of understanding the natural world philosophically, as the product of a first principle. His approach to the study of plants was informed by this and as a result, key features of the science of botany as it developed in the 16th century cannot be said to be characteristic of Theophrastus. These include precise nomenclature, the binomial format, and knowledge that is purposefully and intentionally gained from experience and observation.

This is likely why it is Pliny and not Theophrastus who was cited by the earliest botanists as their primary influence. Therefore, two other events in the history of the transmission of the *Historia Naturalis* can compete as historical markers of the advent of botany with Theodore’s accomplishment. First is the printing of the first two editions of Pliny in 1469 and 1470, and second is the fact that, circa 1481, Giovanni Pico della Mirandola (1463-1494) commissioned an illuminated copy of the *Historia Naturalis*. None of these three iterations of Pliny’s text had come out of the blue. There had been waxing interest in it for decades. In addition to Petrarch’s annotations of the manuscripts P1 (6802) and P2 (6805), the Genovese Lodovico de’Guasti had also written sometime before 1422 an *Epitome Plinii Secundi in Historia Naturali*. In 1433, Guarino Veronese completed a critical edition of Pliny’s text, which was never printed. Following the first two printed editions in 1469 and 1470, there was a flurry of Italian humanist umbrage and consternation over the state of Pliny’s text, concerning its poor editing and printing.

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189 Venice, Biblioteca Nazionale Marciana, MS lat. VI.245 (coll.2976).


191 Cf. Nauert 1980: 323-5. There are several manuscripts of this, including Vatican City, Biblioteca Apostolica Vaticana, Cod. Vat. lat. 7573: https://digi.vatlib.it/view/MSS_Vat.lat.7573.

192 This work of Guarino’s is preserved in two manuscripts: Milan, Biblioteca Ambrosiana, MS D 531 inf; and Munich, Bayerische Staatsbibliothek, MS CLM 11301.
As a result, despite the efforts of Petrarch and Guarino, who relied on the manuscript tradition, the printing press was crucial to the promulgation of the art of commentary on the *Historia Naturalis*. These commentaries proliferated along with numerous other printed editions and focused their attention as much on the carelessness displayed by the early printers, who were working within the confines of a new technology that was prone to mistakes, as on the content of the text itself.

In theory, the inaccuracies of the manuscript tradition should have been resolved by a printed edition, which would stabilize the text, rendering fixed and authoritative one particular version of it. The 1469 *editio princeps*, speaking in the first person, therefore claims in its colophon to be making available to everyone a text that is “rare” (*rarum*) and even “fractured” (*fractus*), but which nevertheless needs to be read (*legendus eram*). In fact, however, the edition is riddled with errors, not edited in a critical way, not properly collated, and even contains lacunae due to the printer’s lack of Greek type. The state of printing, still in the cradle of its infancy in the 15th century, was such that the task of editing and printing a good copy of such a massive text as Pliny’s was daunting. Not only were the manuscripts corrupt and widely dispersed throughout Europe, but the difficulties that accompanied the technical aspects

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193 The first two lines of the colophon are: *Quem modo tam rarum cupiens vix lector haberet: Quique etiam fractus pene legendus eram: Restituit Venetis me nuper Spira Ioannes...* The full colophon will be analyzed later in this chapter.


195 I avoid the term “collation” with respect to the earliest printed editions, because the standard practice in the infancy of printing was to use one manuscript for reference, not to compare manuscripts. However, the term shows up in many of the prefaces and commentaries, and must therefore be understood to mean something more like “careful editing”, “faithfulness to the manuscript”, or even “checking the type to the manuscript before printing”, all of which are driven by one’s knowledge and skill, not standard manuscript collation. This is discussed in Chapter 3.
of producing a monograph were multiplied by the sheer length of Pliny’s text. For humanist scholars, moreover, who were intent on emending it, one of the biggest hurdles involved verification of the 20,000 facts that Pliny bragged about in his preface. All of these had to be sorted out of the “tangle of mutilations, transpositions and corruptions that Pliny’s abstruse and highly technical Latin had become in the Middle Ages.”\(^{196}\) In other words, the accuracy of the claims made in the text was a distinct issue from the accuracy of the reproduced text, and from the “authentic” version of it.

### 2.1 Collation and the Manuscript Tradition

In 1922, A. E. Housman, the classical scholar and poet, declared that if he were to undertake the task of editing a classical author, he would select someone whose works had only survived in one manuscript.\(^{197}\) Housman had already collated Manilius and was hyper aware of the difficulties of establishing the authentic version of an ancient text. Therefore, only somewhat jokingly, he came to the conclusion that for modern editors the ideal work with which to engage is the one with no manuscript counterexamples. Nor is the frustration of collating the manuscripts of an ancient author rendered easier when there is only one work in question. Pliny the Elder’s legacy may only consist of the *Historia Naturalis*, but its encyclopedic length means that even if there were only a few manuscripts, there would almost inevitably still be several points of contention between them. L. D. Reynolds, the Oxford Latinist known for his work on

\(^{196}\) Davies 1995: 240.

textual criticism and for his edition of Seneca’s *Dialogues*, remarked on the fragmented nature of the *Historia Naturalis’ Überlieferungsgeschichte*, the reception and transmission of the text over time. For instance, all of the extant manuscripts from the pre-Carolingian era are fragmentary. During and after that era, only a few manuscripts preserve the bulk of the text, with the vast majority containing only portions of it. “Consequently, with different manuscripts coming into play at different points in the work, it is impossible to build up a continuous and unified picture of the tradition.”\(^{198}\) For instance, the custom of dividing the manuscripts of Pliny into older (*vetustiores*) and newer (*recentiores*) has itself become unreliable, because many manuscripts are incorrectly dated, with some of the *recentiores* now thought to be older than the *vetustiores*. Despite this, Reynolds was still able to identify a general pattern in the manuscripts of Pliny, in which the older ones provide better readings of the text than do the *recentiores*. One reason for this is a standard that is frequently applied to ancient manuscripts: the closer in time to the author, the less likely it is to have been corrupted by having been copied over and over. In Pliny’s case, the fact that the *Historia Naturalis* was not only popular but excerpted\(^{199}\) and even, by C. Iulius Solinus, epitomized\(^{200}\) means that, in addition to manuscripts of Pliny, the modern editor can also rely on such works to verify Pliny’s text.\(^{201}\)

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\(^{199}\) The anonymous *Medicina Plinii* is a compilation of medical remedies taken from Pliny, dated to roughly the 4th century CE.

\(^{200}\) The bulk of Solinus’s *De Mirabilibus Mundi* (3rd c. CE) was taken from Pliny. It was also quite popular and much copied, and therefore can serve as a reference for collating Pliny.

\(^{201}\) Reynolds 1983: 308. See the List of Manuscripts of Pliny, pp. vii-ix above.
There are five known vetustiores: M, N, O, P, and Pal. Chat. Of these, the only one that is particularly useful for collation is M, the Codex Moneus, discovered in 1853 by F. Mone in the monastery of St. Paul’s in Carinthia. A palimpsest dating to the 5th c., M contains much of the text of Books 11-15. A full transcription of M, performed by F. Mone himself, was included in volume 6 of Sillig’s 1855 edition of Pliny. Next to M, the best manuscript with evidentiary value is Q, the codex Salmasianus, dated to circa 800 in Italy, which has medical excerpts from Books 19-20. Manuscript A, which dates to the first third of the 8th century and contains Books 2-6, though with missing sections, was copied from an unknown exemplar in the north of England. Books 2-6 were evidently known to Bede, and Pliny was listed by Alcuin among the authors whose works were in the library at York. Despite this, attempts by scholars to connect the manuscripts of Pliny more definitively to Bede have mostly met a dead end.

202 M is St. Paul im Lavanttal, Stiftsbibliothek, MS 3.1. N is Rome, Biblioteca Nazionale, MS Sessor. 55; O is Vienna, Österreichische Nationalbibliothek, MS 1a; P is Paris, Bibliothèque Nationale de France, MS lat. 9378, folio 26; Pal. Chat. is Autun, Bibliothèque Municipale, MS 24 + Paris, Musée des Archives Nationales, MS lat. 1629. See Reynolds 1983: 108n3.

203 Reynolds 1983: 308. “It is an extremely valuable manuscript, often far superior to the other witnesses for these books [= 11-15], and a clear example of the general truth, that where no really good manuscript of Pliny is available we have a very indifferent text.” It is not entirely clear what Reynolds means by this statement, except that while the reading of books 11-15 that is provided by M is vastly superior to that found in other manuscripts, it is only out of indifference to accuracy.

204 Paris, Bibliothèque Nationale de France, MS lat. 10318.

205 Leiden, Bibliotheek der Rijksuniversiteit, Voss. Lat. F.4. “This is by far the earliest surviving manuscript of Pliny to have been written north of the Alps.” Reynolds 1983: 309.


207 MGH, Poetae Latini Aevi Carolini, ed. E. Dümmler, i (Berlin, 1880-81), 204, line 1548. This is cited in Reynolds 1983: 309n8.
The next stage in the Überlieferungsgeschichte of Pliny’s text is the Carolingian era, although the manuscripts from this time period are still considered vetustiores. Pliny was cited as an authority for his passages on astronomy, both by Alcuin and by Dungal, an Irish scholar, in letters to Charlemagne. Both letters seem to indicate that Charlemagne could find a copy of Pliny at Aachen, and Reynolds, citing the work of V. H. King, considers this unnamed manuscript the likely source of the so-called Excerpta Eboracensia (the “York Excerpts”, or manuscript m).208 These are astronomical excerpts from Books 2 and 18, and were once thought to have originated in Northumbria and therefore to have been connected to Bede. The Excerpta have a shared origin in a Computus, or compilation from 809, which contained the excerpts from Pliny, accompanied by illustrations.209 Manuscript H,210 circa 800, contains a passage in digest form from Book 18. Finally, the best manuscript of this era to transmit the later books of the Historia Naturalis is B, which is also the only one to preserve the very end of Book 37, and therefore of the entire text.211

208 Reynolds 1983: 310. See King, V. H. 1969. An Investigation of some Astronomical Excerpts from Pliny’s Natural History found in Manuscripts of the earlier Middle Ages. (Unpublished B. Litt. thesis, Oxford); Published by Rück, K. 1888. Auszüge aus der Naturgeschichte des C. Plinius Secundus in einem astronomisch-komputistischen Sammelwerke des achten Jahrhunderts. München, Straub. Reynolds (1983: 310-11) devotes some space to discussing other possible connections to Bede, noting two other sets of excerpts (y =Leiden, Bibliotheek der Rijksuniversiteit, Voss. Lat. Q. 69 and i= Paris, Bibliothèque Nationale de France, MS lat. 4860), both containing portions of a florilegium derived from Books 2, 3, 4, and 6. Manuscript y, dated to circa 800, was copied at St. Gall, and manuscript i, dated to the last quarter of the 9th century, was copied out at Reichenau. The York manuscripts cannot be linked to A, the one Plinian manuscript of Anglo-Saxon origin, but y and i do have some similarities with A. Reynolds therefore thinks that these two manuscripts are a better source for those interested in establishing a definitive connection to Bede.


210 Lucca, Biblioteca Capitolare, MS 490 (CLA III.303e).

211 Bamberg, Staatsbibliothek Bamberg, Class. 42.
B dates to the first third of the 9th century, and was copied out at Louis the Pious’ palace scriptorium.212 Despite its excellent quality, it only contains Books 32-37, thus illustrating Reynolds’ point that, “the great misfortune for Pliny’s text is that most of the good manuscripts are fragmentary or contain only excerpts.”213

The recentiores, although considered inferior in quality to the vetustiores, are considerably less fragmentary and overall provide a much more unified and complete picture of Pliny’s text. Reynolds engages in far less discussion and speculation about these five manuscripts, which he calls the ordo recentiorum.214 They can be shown to have a common origin, because in all of them, two passages (Books 2.187b-4.67a and Books 4.67b-5.34a) have been switched.215 Of them, E has had the largest impact on the recentiores.216 This is clear from the fact that in addition to the two switched passages, an error it shares with the other four, it has


214 Reynolds 1983: 311-312 and Roger Pearse 2013. See the List of Manuscripts for a chronological list.


216 E is Paris, Bibliothèque Nationale de France, MS lat. 6795.
its own mistakes and lacunae, which, despite attempts to remedy and fill them in, were preserved
in its descendants.\textsuperscript{217} A number of later medieval manuscripts were copied or derived from E.\textsuperscript{218}

What is interesting about the entire list, including the vetustiores, the ordo recentiorum, and E’s descendants, is that the Petrarch manuscripts do not appear on it. The only two medieval manuscripts that contain the entire text of Pliny are B and F.\textsuperscript{219} Three others were once whole but later divided up (D, G, and V).\textsuperscript{220} Manuscript E, from which the bulk of the later manuscripts is derived, only goes up to book 32. This significantly limits the number of candidates for manuscripts used by the printers of the 15th century. Most likely, the five manuscripts known as the ordo recentiorum served as the reference for the bulk of Pliny’s text. Yet the vetustiores, which Reynolds refers to collectively as “the old tradition”, although they were far more fragmented than the recentiores, nevertheless continued to be used to fill in the gaps and correct the recentiores. Their role in the transmission of Pliny’s text is crucial because of their superiority. Their historical proximity to Pliny himself relative to that of the recentiores means that the actual text preserved in them is far closer to original and authentic than the text in later manuscripts.

\textsuperscript{217} Reynolds 1983: 312. Specifically, a passage from Book 24 (93b-100a) was mislaid in one of its ancestors; Books 27 and 28 are lacunose in an ancestor; and E itself has missing leaves, which caused its descendants to be lacunose. See Reynolds 1983: 315 for a list of manuscripts derived from E, including h (Berlin, Staatsbibliothek zu Berlin, Ms. Hamilton 517) and Leiden, Bibliotheek der Rijksuniversiteit, Voss. Lat. Q.43.

\textsuperscript{218} See the List of Manuscripts.

\textsuperscript{219} Leiden, Bibliotheek der Rijksuniversiteit, Lipsius 7.

\textsuperscript{220} Rome, Biblioteca Apostolica Vaticana, Cod. Vat. lat. 3861; Paris, Bibliothèque Nationale de France, MS lat. 6796, ff. 52-3; and Leiden, Bibliotheek der Rijksuniversiteit, Voss. Lat. F. 61.
Reynolds therefore observes that much later hands in the *recentiores* have “vital textual importance”, because they “found access to the superior tradition, at least for certain areas of the text, as their affinity with what remains of the early *vetustiores* clearly demonstrates.”221 This is, essentially, the same method as *recensio ope codicum*, or collation by reference to the manuscript tradition. The term is often used in the context of the printing press in Europe and the advent of edited editions of classical authors, but the technique was well established in the Renaissance and in the Italian humanist tradition. In contrast, scribes and editors could rely on their own reasoning skills and knowledge about Latin, ancient texts, etc. to fill in the gaps. This technique, known as *recensio ope ingenii sui*, is essential for anyone attempting to make sense of a corrupted manuscript tradition. There will inevitably be places in the text where the manuscripts cannot offer definitive answers. In such situations, it is necessary to use one’s *ingenium*, one’s knowledge of the language, the author, and the historical and social context in which they operated. However, although *recensio ope ingenii sui* is a crucial part of the process of recension and of reconstructing an ancient text, it is just as unreliable as the manuscript tradition. “People also used their wits, and the process of correction, accompanied by the equally inevitable process of degeneration and corruption, eventually produced composite and contaminated texts of Pliny which are not easily sorted out and are still only partially explored.”222 This problem is not unique to Pliny’s text, but the overreliance on one’s own *ingenium* can be said to have contributed as much to the corruption of Pliny’s text as did the shambles of the manuscript tradition. If one is to find evidence of the older tradition, or superior

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221 Reynolds 1983: 313. Especially D², F², R², and E². These are later hands, correctors in fact, as Reynolds sees it, who had access to other traditions.

222 Reynolds 1983: 313.
readings of Pliny’s text, Reynolds argues that one should look to manuscripts originating from the Continent. In particular, the correcting hands D², F², R², and E² made, according Reynolds, “spectacular improvements” to the text as it was preserved in the *ordo recentiorum*. Hinting at the issues of relying on *recensio ope ingenii sui*, he remarks that with regard to the fragmentary and diffuse nature of this tradition, the main question is whether “anything of value escaped the net of the correcting hands to surface in the later manuscripts of Pliny.” That is, did anything of the old tradition, which is supposed to be superior, find its way intact into the later manuscripts?

Reynolds’ work was focused on the *vetustiores* and the *ordo recentiorum*, the group of manuscripts that served as the reference for the manuscripts that came even later, in the 12th century and beyond. The latter are innumerable, but despite their supposed inferiority, are nevertheless of great import, because it was one of them that must have served as the reference for the 1469 *editio princeps* of Pliny’s *Historia Naturalis*. They are also important because it was via contact with the later manuscripts that most Renaissance scholars became familiar with Pliny’s work. For instance, in 1350, the humanist scholar Petrarch (1304-1374), who is thought to have been well acquainted with Pliny’s text by the late 1330s, acquired his own copy, now P1 (6802). This manuscript is annotated by Petrarch himself, but, as is evidenced by the many other hands that appear throughout, he likely allowed it to circulate among his friends, including

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223 Despite attempts by scholars to locate a robust tradition of Plinian manuscripts in England that can be traced to Bede, Reynolds argues that the copies of Pliny that were in circulation there in the 12th century were most likely imported, and at the same time, unlikely to have survived the 9th century’s many “disorders and sackings” of the region.

Boccaccio. McHam (2013) argues that Petrarch’s first acquaintance with Pliny was likely in his childhood at the papal court in Avignon, where his father had relocated the family in 1312 after his exile from Florence. Specifically, McHam thinks that it was possible that Petrarch encountered in his elementary schooling the *Defloratio Naturalis Historie Plinii Secundi*, an epitome by Robert of Cricklade, which was popular in France at the time. Later, at the papal library in Avignon, he would have come across lengthier, more intact manuscripts of Pliny, for instance, the copy that John XXII had had made in 1317. Petrarch was a fierce admirer and defender of Pliny, who even in the 14th century was subject to criticism as a natural history authority. Yet Petrarch declared that he was the most distinguished and learned man of his age:

>Cum tu impurissimum os aperire non sis veritus in Plinium Secundum, virum ex omnibus sue etatis doctrina ingenioque prestantissimum? Ita enim de illo scriptum video; nec excipitur Galienus…

When were you not afraid to open your incredibly foul mouth in opposition to Pliny the

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226 McHam 2013: 59.


Elder, the most eminent man of all in his era, in terms of his doctrines and his *ingenium*? Or at least, that is what I see written about him; nor is Galen exempt…

In addition, in his *De Remediis utriusque fortunae* (1354-66), which was written as a rejoinder to Pope Innocent III’s *De contemptu mundi, sive de miseria conditionis humanae* of 1195, Petrarch repeatedly refers to Pliny, often citing him by name. *De Remediis* was incredibly popular, with around 150 extant manuscripts, 94 abridgements, and seven editions printed in Latin between 1470 and 1756.230

The first manuscript of Pliny that Petrarch owned was P1 (6802), the precise purchase date and place of which is known because he inscribed them on the final leaf (fol. 277v): Mantua, 6 July 1350. The scribal hand points to its having been copied in the late 13th century, but, despite having 554 pages of text, each with two columns, it is incomplete. It contains all 37 books of the *Historia Naturalis*, but some are only one-paragraph-long summaries. McHam (2013) surmises that Petrarch might not have been aware of how much of Pliny’s text had been omitted in his new manuscript, but he certainly knew that it was corrupt.

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229 I have kept this word untranslated because of its import in textual criticism. Petrarch, as a humanist scholar, would have been well aware of the fact that *ingenium* in the context of textual emendation meant many things at once: erudition, skill, learning, precision, care, logic, reasoning.

230 McHam 2013: 68. “By repeatedly invoking Pliny by name and allusion, *De remediis* alerted Petrarch’s contemporaries to his chief authority and to the encyclopedia’s importance. However, it was much easier for them to get acquainted with Pliny through *De remediis*’ short, pithy dialogues than by reading the *Natural History* itself.”

231 Nolhac 1965: 2.70

232 McHam 2013: 63. Regarding the manuscript’s provenance after Petrarch’s death, see Nolhac 1965: 2.274.
He bemoaned the state of the manuscript tradition, not just for Pliny’s text, but for all Roman authors, and declared that they would not even have recognized their own work:

An si redeat Cicero, aut Livius, multique alii veterum illustrium, ante omnes Plinius secundus, sua scripta relegentes intelligent, et non passim haesitantes nunc aliena credent esse, nunc aliena barbarae?\textsuperscript{233}

But if Cicero were to return, or Livy, and many others of the illustrious ancients, but Pliny the Elder above all, and to reread their own writings, will they recognize them, and hesitating here and there, would not they believe that some are not even theirs, and that others are someone else’s babble?

Thus, Petrarch was well informed about the status of his manuscript as a recentior of inferior quality. Examination of his annotations of P1 (6802) reveals that he was in fact trying to emend the Latin text,\textsuperscript{234} usually by comparing the details of it with similar accounts in other ancient writers. Nevertheless, there are many other inaccuracies in the text, which Petrarch either overlooked or actively perpetuated. Moreover, it appears that Petrarch engaged in active, focused annotation of the manuscript twice, the first time right after he purchased it in 1350, and the second time around 1356.\textsuperscript{235} One of the other hands in the manuscript has been identified as Boccaccio’s, evidence that not only did Petrarch engage in dialogue with his contemporaries

\textsuperscript{233} Petrarch, \textit{De Remediis utriusque fortunae, libri duo}. Text taken from 1600 edition, Bern, Jean Le Preux: 143.

\textsuperscript{234} The manuscript is very heavily annotated by Petrarch, but only on certain leaves. The selection of passages to remark on is therefore worth thinking about. Just as one example, on fol.270r, at Book 37.6.15, there is a manicula in the margin pointing to the text \textit{numquam profecto inter illos viros durasset cognomen Magni, si prima victoria sic triumphasset!} The marginal annotation reads \textit{si sicut prima victoria[s] triumphasset!} (The margins have evidently been trimmed, so that word \textit{victoria} is cut off). On fol. 266v, at Book 36.xxiv.123, where he is discussing the Roman aqueducts, there is a sketch of a castle, at the top of which it says Iulius Cesar Claudius, and at the bottom of which it says Roma sola mirabilis toto orbe terrarum. The hand seems to match Petrarch, and it is well established that the many sketches in the margins of the manuscript are his.

about Pliny, but even lent his precious personal copy to at least one of them.\textsuperscript{236} The passages that were of the most interest to him can also be inferred from the placement of his many annotations and abbreviations. He mostly passes over the books dealing with medicinal remedies from plants and animals, except for Book 20 and its famed catalog of home remedies made from garden plants, especially “simples”.\textsuperscript{237}

Despite all of this, the full extent of the influence of Petrarch on the resurgence of interest in Pliny the Elder is unknown and unquantifiable. What is known is that although in his will Petrarch left his library to Venice, Francesco I da Carrara, lord of Padua, took possession of most of it. As late as 1379, his library was still intact in Padua, when Lombardo della Seta had copies made of Petrarch’s own works and those of others in his collection. Many of these copies were then distributed around, but it is thought that Petrarch’s copy of Pliny and his own, autographed copy of \textit{De remediis} both remained in Padua until 1388, when da Carrara was defeated by an alliance between the Visconti and Venice and Padua was taken. At this point, any valuable books that da Carrara possessed were sent to Pavia. The Pliny manuscript along with a few other materials were then placed in the collection of the Doge of Genoa, Tommaso di Campo Fregoso.


\textsuperscript{237} McHam 2013: 64. Based on the density of Petrarch’s annotations in certain passages, particularly in Books 35 and 36, McHam argues that Petrarch was most interested in Pliny’s thoughts on art.
In 1481, Tommaso gave these volumes to the King of Naples, Alfonso the Magnanimous. From there, it went to the Bibliothèque Nationale de France, in Paris, where it still remains. However, Petrarch’s manuscript was just one of many and by the 15th century, the manuscript tradition was incredibly convoluted. This, combined with the imprecision of the early printed editions of Pliny’s text, created a situation in which the humanist scholars were driven to skepticism, not just with regard to the “authentic” text, but with regard to Pliny himself as a reliable authority. Some of this skepticism might have been relieved had there been a systematic collation of Pliny’s manuscripts, but this was not even attempted until 1763, by an Italian nobleman named Rezzonicus, who did not finish the job. Finally, in the early 19th century, Ludwig von Jan collated the manuscripts located in Paris and Florence. At the time von Jan began his research in 1828, it was thought that manuscript R, dated to the second half

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238 This is why the manuscript was listed in the Catalogus Codicum manuscriptorum Bibliothecae regiae, ed. Anicet Mellot et al., published by the Bibliothèque Nationale de France, Département des manuscrits. See also McHam 2013: 76 and Nolhac 1965: 1.90-102.

239 Reeve (2007) provides an incredible resource to anyone interested in making sense of the manuscripts, by virtue of a new collation.

240 Rezzonicus’ intention was not to stabilize the text, but to establish whether Pliny came from Como or Verona. See Reeve 2007:111n4: “Antonius Joseph Comes A TURRE REZZONICI, Disquisitiones Plinianae, Parma, 1763-67. On manuscripts see vol. I, p. 284, 298, vol. II, p. XI-XIV, 218-75. Strangely, his note on Praef. 7 (vol. I, p. 256) does not mention the gloss.” Rezzonicus was from near Lake Como, hence the interest in Pliny’s origins. This debate about Pliny’s origins may also have played a role in Guarino Veronese’s interest in him. See his Letters, especially #265 (I.411-413). Guarino’s correspondent spends the entire letter discussing whether Pliny was from Como (Novocomensis) or Verona (Veronensis). Also, in letters #7 (pg. 21) and #350 (pg. 511), Guarino refers to Pliny as conterraneus meus (my compatriot).

241 In 1826, the Gesellschaft deutscher Naturforscher und Ärzte, founded just four years earlier in 1822, met in Dresden, where a plan to collate the manuscripts was devised by K.A. Böttiger, F. Thiersch, and L. Oken, founder of the Gesellschaft. In 1827, Thiersch obtained funds from Ludwig I of Bavaria for his pupil, Ludwig von Jan, to visit libraries in Paris and Florence. This research was performed between 1828 and 1829.

242 Florence, Biblioteca Riccardiana, MS 488.
of the 9th century, was the oldest complete Plinian manuscript. Manuscript R contains books 1-34, and is missing books 35-37, which means that the last 3 books had to have been preserved in some older manuscript(s). Moreover, von Jan was sure that the ending lines of Book 37 were missing from the printed editions. In 1831, he encountered manuscript B, dated to the first third of the 9th century and containing only books 32-37. 

Manuscript B is also the only known manuscript to preserve the final lines of the book, which confirmed von Jan’s hypothesis that there were missing lines. Sillig then used manuscript B for the “first complete edition” of the Historia Naturalis. As we will see in the upcoming discussion of the first printed editions of Pliny in the 15th century, while it is difficult, if not impossible, to definitively identify the manuscripts that the printers and editors used, there are certain commonalities that show up in them. In the next section, we will discuss the editio princeps, not with the intention of identifying which manuscript(s) were used in its production, but in order to highlight the ways in which the printed text failed to provide any satisfactory answers to scholars of Pliny. Rather, it added to the confusion and errata that had long marked the manuscript tradition.

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244 Reeve 2007: 111.

2.2 The 1469 Venetian Edition

In 1469, the German printer Johannes de Spira produced the first edition of Pliny the Elder’s *Historia Naturalis*. The exact month of publication is unknown, but it is possible to set an *initio ante quem* of September 18, because it was on that date that the government of Venice granted to de Spira the right to print books in Venice for the next five years. This was because de Spira had already produced the *Historia Naturalis*, along with an edition of Cicero’s *Epistulae ad Familiares*. Most likely, de Spira simply chose these particular texts as the first ones to be produced by his press because of the popularity that classical texts were enjoying in Italy, particularly in Venice. It is also possible that de Spira intended to apply for this kind of exclusive grant from Venice and therefore selected Cicero and Pliny under the assumption that their names were prestigious enough to impress the Venetian authorities. Yet this does not explain why he

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246 Digital copy: https://dpul.princeton.edu/gutenberg/catalog/q237hx283. The Vatican Library also has a copy (https://digi.vatlib.it/inc/detail/11009934); however, only an image of the printer’s mark is digitized. The cataloging comments for the Princeton copy are printed on a typewriter and affixed to the rear pastedown and are well worth a look, as they provide detailed information about the printed book. “Printing with movable types was introduced into Venice, as into Rome, by a German craftsman, one Johannes de Spira, a native of Speier on the Rhine...From other sources it appears that he had been resident in Venice for some considerable time prior to this date, and had married an Italian wife; originally, he seems to have been one of those printers of Mainz whom the decline of that city’s prosperity after the sack of 1462 gradually dispersed over Western Europe. Within four months of his first edition, he had produced a second of the same work in three hundred copies and then went on to a much more ambitious venture, the Historia naturalis of Pliny in large folio.” (This is quoting Br.Mus.Cat., Vol. V, p. ix).
chose Cicero’s *Letters to Friends*,247 or why he thought that Pliny would be more impressive than, for example, Virgil. De Spira’s reasoning is unknown, and there is little in the way of prefatory remarks in his edition of *Historia Naturalis* to provide insight.248 Nauert (1979) points out, anticipating my own argument that the *Historia Naturalis* serves as its own reception sphere, that one of the reasons Pliny had appealed to Renaissance humanists was precisely because his text preserved the ideas and terminology of prior Greek and Roman authors.249 In the absence of any clear rationale for de Spira’s decision to print Pliny, then, one can simply assume the popularity and usefulness of his text for humanist scholars.

The de Spira edition has no introduction, but simply begins with a short, one-paragraph-long *Vita Plinii ex Cathalogo Virorum Illustrium Tranquilli*,250 in which Pliny’s profession is briefly described. There are none of the prefatory remarks that would characterize later editions,

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247 Petrarch of course is credited with discovering Cicero’s *Letters to Atticus* in 1345 in an 11th-century manuscript in the Biblioteca Capitolare della Cattedrale di Verona. He had evidently copied the original manuscript; this copy is Codex M, or Cod. Med. Plut. xlix, no. xviii from the Biblioteca Medicea Laurentiana, no longer extant. According to Clark (1921: 18) however, the *Letters to Atticus* were already known to the anonymous author of the 1329 text *Flores Morales*, written in Verona. They were also known to Petrarch’s friend in Verona, Guglielmo da Pastrengo, who may have shown the manuscript to Petrarch or told him about it. The *Letters ad Fam.* were also a discovery of Petrarch’s, found in a Vercelli codex. He also made a copy of this, which was catalogued as Cod. Med. Plut. xlix, No. vii, See Leighton, Robert F. 1890. “The Medicean Mss. of Cicero's Letters.” *TAPA* 21: 59-87.

248 As discussed above, Guarino Veronese had prepared a critical manuscript edition of Pliny in 1433. It is thought that he intended to print this edition in Rome in 1469, but never did. It is worth wondering if de Spira knew of these intentions and wished to beat Guarino to the punch.

249 Nauert (1979: 75). “But to a group of literary and linguistic scholars like the humanists, probably the most valuable material available in the *Natural History* and neglected by the Middle Ages was literary and linguistic. Pliny drew heavily and explicitly on earlier Greek and Roman authors, many of whose works were preserved only in his quotations from them. Most valuable of all for the practicing classical scholar, he provided a classical vocabulary of scientific words not available in any other ancient Latin author.”

250 The genitive *Tranquilli* here refers to Suetonius Tranquillus.
and there is no address to the patrons. Moreover, de Spira’s *Vita* constitutes the beginning paragraph of Suetonius’ *Vita Plinii Secundi*. The lack of attribution is both common to the era, the late 15th century, and an indication that Suetonius’ *Lives* were sufficiently known that de Spira did not see the need to explain himself. Its presence also hints at de Spira’s ignorance of Pliny: it was almost certainly included on the manuscript he used as a reference, and he may simply have reproduced it under the impression that anything on the manuscript was essential to the text. The *Life of Pliny*, in both iterations, primarily expresses wonder that Pliny was able to produce such a marvelous and lengthy work while engaged in *negotium*, as opposed to *otium*. An account of his death at Mt. Vesuvius is also provided, including the fact that some people say that his slave killed him (*vi pulvers ac favillae oppressus est, vel ut quidam existimant a servo suo occisus*). The *Life of Pliny* as de Spira has it extends the original ending in Suetonius’ version, which ends with the claim of Pliny begging his slave to end his life for him, to include a statement about the format of the *Historia Naturalis* (fol. 1r):

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...Quem deficiens aestu ut necem sibi maturaret oraverat hic in his libris xx milia rerum dignarum ex lectione voluminum circiter duum milium complexus est. Primus autem liber quasi index xxxvi librorum sequentium consumationem totius operis et species continent titulorum.
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He begged him, as he himself was abandoned to the inferno, to hasten his death; he included in those books of his 20,000 worthy facts, taken from his reading of around two thousand other volumes. Moreover, the first book is like a complete index of the 36 sequential books of the entire work, and the kinds of titles they have.

Suetonius ends with *...quem deficiens aestu ut necem sibi maturaret oraverat*. Everything that follows *oraverat*, from *hic in his libris* on, however, is not a complete invention on de Spira’s
part, but originates in Pliny’s own preface, though much altered and corrupted, being either a late medieval appropriation or adapted by de Spira himself (HN, Preface, 17):251

\[\text{viginti milia rerum dignarum cura—quoniam, ut ait Domitius Piso, thesauros oportet esse, non libros—lectione voluminum circiter duorum milium, quorum pauca admodum studiosi attingunt propter secretum materiae, ex exquisitis auctoribus centum inclusimus triginta sex voluminibus, adiectis rebus plurimis quas aut ignoraverant priores aut postea invenerat vita.}\]252

I have included 20,000 facts worthy of note - since, as Domitius Piso says, it is treasure vaults that are needed, not books - by reading around 2,000 other volumes (of which students have as yet touched upon only a few, due to the secrecy of their subject matter) and drawing on 100 authors whom I have sought out, in 36 volumes, with many things thrown in, of which earlier writers had either been ignorant or which my own life experience had discovered later on.

The changes made to Pliny’s claim are not insignificant, and they provide insight into the state of his authority in the late medieval and early Renaissance periods. The phrase \textit{ex lectione} in de Spira’s edition, sandwiched as it is between \textit{dignarum} and \textit{voluminum}, points to the recurring issue, in any discussion of Pliny, of the origin of one’s \textit{cognitio}. \textit{Lectio} was both a mode of discourse commonly used in teaching and a method of dictating to one’s scribes. In the book-learning versus experience dichotomy, \textit{lectio} occupies a liminal space: it is both useful for the transfer of knowledge to others, for which the “anti-elitist” Pliny advocated, and it lends itself to \textit{ad hoc}, informal learning environments such as in the field and in practice. At the same time, it

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251 This is taken from the Loeb Classical Library edition, which relies heavily on Sillig’s (1831) and on Detlefson’s editions, and the editors of which made no attempt at a new collation of the manuscripts.

252 De Spira’s edition is as follows (fol. 1v): \textit{viginti milia rerum dignarum cura, quoniam ut ait Domicius Piso thesauros oportet esse non libros ex lectione voluminum circiter duum milium, quorum pauca ad modum studiosi attingunt, propter secretum materiae exquisitis [sic] auctoribus centum inclusimus triginta sex voluminibus adiectis rebus plurimis, quas aut ignoraverant priores aut postea invenerat vita.}
is aligned with book production and the intellectual barriers that literacy and *paideia* enforced in ancient Rome.

De Spira’s *Life of Pliny* conveniently leaves out all of the details about content and process that Pliny had included, apart from the technique of *lectio*. Pliny himself lays out in the preface two prominent features of his rhetorical digressions: his willingness to engage in dialogue about secretive subject matter, such as “magical” herbs, and the fact that he places equal value on experience as he does on relying on earlier authorities. The element of secrecy takes two forms in this prefatory comment. Evidently, there are certain volumes to which Pliny had access and to which others did not. At the same time, by referring to his own additions as things of which earlier writers had not known (*quas aut ignoraverant priores*), he lends credence to the idea that the names of magical and alchemical herbs were in fact pseudonyms. The *aut...aut* construction sets Pliny’s own experience against the information overlooked by others: some of the additional information does not originate in Pliny’s experience. But if so, in what does it originate? There is no definitive answer to this question; however, I take it as not only possible, but plausible, that in the volumes Pliny consulted there was hidden information. In the case of herbs, the authors on whom Pliny relied could have used pseudonyms. The fact that the *Life of Pliny* leaves all of this out, and instead chooses to focus on the fact that Book 1 is essentially an index for the remainder of the text, is an indicator of what was seen as pertinent information to place at the head of the text: Pliny’s boast (*oraverat*) about the number of facts in

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253 It is left out only insofar as it is not extracted from the actual text of Pliny’s own preface. De Spira includes the preface in full (see the above footnote), but the digest version of it that is appended to Suetonius’ *Life* is telling.

254 This tracks with what we know of certain medieval and Renaissance-era alchemical herbals, in which the names of the plants are ciphers.
the *Historia Naturalis* and the basic structure of the text. Thus, the sheer size of the work seems to have been what most impressed the unknown authors of the *Life* and de Spira as well.

In fact, the *Vita Plinii* is far more important to the printing and manuscript history of Pliny’s text than it at first appears. The presence of the *Vita Plinii* is a crucial piece of evidence that can help to identify which manuscript(s) served as a reference for de Spira’s edition. Reeve (2011) has noted that from de Spira in 1469 all the way up to a 1543 Paris edition, every printed edition of Pliny the Elder began with the *Vita Plinii*. Reeve is unsure of the authorship of the *Vita*, and questions whether Suetonius actually wrote it. His *De viris illustribus*, from which the *Vita Plinii* derives, is attested by St. Jerome, in his own work of the same name, although the *Life of Pliny* is one of the few biographical sketches that have survived.\(^{255}\) Roth (1858) and Reifferscheid (1860) are the most recent editors to work on the *Vita Plinii* since Vinetus in 1556 mistook it for a previously unknown work by Suetonius and published it.\(^{256}\) However, Roth and Reifferscheid both identified a number of manuscripts that contained the *Vita Plinii*, under the title *Vita Plinii ex Catalogo Virorum Illustrium Tranquilli*. They assumed based on this that the *Vita Plinii* was in fact correctly attributed to Suetonius. However, Joseph Scaliger had in 1606 already dated the *Vita Plinii* to after Jerome,\(^{257}\) and even Roth admitted that the text of the *Vita*

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\(^{255}\) Reeve 2011: 207-08. Jerome’s *De Viris Illustribus* begins, “You urge me, Dexter, to follow in the footsteps of Tranquillus and classify in order the ecclesiastical writers, and to do what he did, when he gave an account of the men who authored secular literature, for our own eminent writers.” (*Hortaris, Dexter, ut Tranquillum sequens ecclesiasticos scriptores in ordinem digeram et quod ille in enumerandis gentilium litterarum viris fecit illustribus ego in nostris faciam.*)

\(^{256}\) Vinetus included it in his *Suetonii Tranquilli de Illustribus Grammaticis et Rhetoribus Libri Duo* (Poitiers 1556).

could not possibly be that of Suetonius’, at least not intact, unchanged or uncorrupted. Reeve takes the debate a step further and notes that “there is no other evidence, or at least no direct or explicit evidence, that he [Suetonius] wrote a life of the Elder Pliny.”

Reeve’s concern is primarily with the attribution of the *Vita Plinii*, but the answer to the question of which manuscript de Spira used lies in the same evidence that Reeve cites. For instance, the only “older” (*vetustior*) manuscript that has preserved its first leaf is E, dated to the 9th-10th c. This manuscript is the ancestor of a number of *recentiores*, and so the presence of the beginning of the *Vita* on fol. 1v is significant. In fact, Reeve has identified a family of manuscripts that influenced the “earliest editions” of Pliny, based on the title *Vita Plinii ex Catalogo Virorum Illustrium Tranquilli*. This family can be traced back to the 12th century, the temporal origin of four of its manuscripts: Leiden, Bibliotheca der Rijksuniversiteit, Voss. Lat. F.1; London, British Library, Arundel 98, which ends at Book 18; Le Mans, Bibliothèque Municipale de Le Mans, 263; and Naples, Biblioteca Nazionale, V A 1.

This family of manuscripts has as a common ancestor a descendent of h (Hamilton 517), which was supplemented, and is itself a descendent of E. Reeve is fairly sure that this is how the text of the *Vita* was introduced to the manuscripts of Pliny, but is unsure of how the title, which states that Tranquillus (Suetonius) is the author, found its way into the manuscripts.

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259 Reeve 2011: 210. For Reeve’s purposes, this is a travesty, because the title of the *Vita* is missing, which means that its ascription to Suetonius is also missing. However, while de Spira obviously could not have gotten the title from E, or from its direct descendents, nevertheless, this helps to locate a possible ancestor for whatever manuscript he did use.

260 Reeve 2011: 211. Cf. Reeve 2007: 152-155. Reeve’s wording is somewhat inscrutable: “The title known to Roth and Reifferscheid, *Vita Plinii ex catalogo virorum illustrium Tranquilli*, reached the earliest editions from a family of manuscripts that I have recently defined for the first time…” This would seem to indicate that de Spira’s edition was based on a manuscript in this family. But because Reeve’s primary concern is with the attribution of the *Vita*, the relationship between this family and de Spira is unclear.
its way in. For the purposes of placing de Spira’s text in historical context, however, the inclusion of the *Vita* at the beginning of Pliny’s text, to whomever it must be attributed, can be traced to this particular family of manuscripts. This is evidence that de Spira’s own source was descended from or included in this same family, simply by virtue of the fact that de Spira uses the title *Vita Plinii ex Catalogo Vlorum Illustrium Tranquilli*. Moreover, one of the Plinian manuscripts annotated by Petrarch, P1 (6802), begins with a *Vita Plinii ex Cathologo* [sic] *Vlorum Illustrium Tranquilli*, thus strengthening the argument that it served as a reference for de Spira.261

The identification of the manuscript used by de Spira is not crucial to this project, although it is a piece of the overall puzzle, which depicts the transmission of Pliny’s text from antiquity to his eventual inclusion in Otto Brunfels’ 1530 herbal. The key transition points involve the errors made in the earliest printed editions, and by Pliny himself. Thus, it is important to note that, after the *Vita’s* paltry explanation of Pliny’s life and death and the sketchy

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261 P2 (6805) does not have the *Vita* at the beginning of the text, but at the end, on fol. 550r following ...perveniat desinens nior. It is titled *Vita Gaii Plinii ex Talago* [sic] *Vlorum Illustrium Tranquilli*. The spelling talago is clearly just a mistake in copying, with the first two letters having been left off. The text closely follows that of P1 (6802). The last Suetonius-derived line reads ...*in pulvris ac favillae oppressus est, vel ut quidam existimant a servo suo occisus est, quem deficiens aestu ut necem/// [appears corrected from necesse] sibi maturaret oravert*. The remainder, constituting the corrupted Pliny, reads *Hic in his libris 20,000 [xx abbr. with line on top = 10,000 x 2] rerum dignarum ex lectione voluminum circiter duum milium complexus est. Primus autem liber quasi index xxx sex librorum sequentium consumptionem totius operis et species continet titulum*. The fact that this last portion corresponds nearly exactly to P1 (6802), whereas the portion from Suetonius has a few differences makes the question of the origin of this spliced and diced “Life of Pliny” somewhat perplexing. I do not think that it was copied from another manuscript as part of Pliny’s text, because it is titled as the *Vita Plinii*, so while the placement of the *Vita* at the end is likely taken from the exemplar, I doubt the scribe mistook it for Pliny’s text. It is interesting, however, that this copy includes Pliny’s *praenomen*, which it also includes in the first line of the *HN*, whereas P1 (6802) and de Spira both simply use his *nomen.*
summary of the work’s layout, the de Spira edition begins with the text of the *Historia Naturalis*, although with an immediate error. The dedication that Pliny makes to the emperor states in this edition:

Caius Plinius Secundus NA Domitiano Imperatori Salutem Dicit.

However, Pliny did not live in the time of Domitian’s rule. Domitian became emperor in 81 CE, two years after Pliny died. In fact, Pliny dedicated the work to Vespasian, and this is reflected in modern editions, which begin: *Plinius Secundus Vespasiano Suo S*. The 1469 edition’s other shortcomings become obvious fairly quickly. Without Greek typeface, the printers have left blank any places where Greek appears in the text. For example, where Pliny says, *ante omnia attingenda quae Graeci τῆς ἐγκυκλίου παρεῖας vocant*, the 1469 edition reads *an omnia attingenda quae Graeci /// vocant*. Another issue is immediately apparent. De Spira has used *an* instead of *ante*, and this is no doubt due to the manuscript(s) he used. The 14th-century Petrarch-owned manuscript P2 (6805) begins thus:

Gaius Plinius Secundus Vespasiano suo salutem [dicit].

Immediately, then, this version of Pliny’s salutation is at odds with de Spira’s. However, there is a point of convergence in the Greek. In P2 (6805), the above line (*ante omnia attingenda quae Graeci τῆς ἐγκυκλίου παρεῖας vocant*) reads:

Iam omnia attingenda quae Graeci /// vocant...263

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262 fol. 1v (pg. 2). The empty space also takes up a significant portion of the middle of the line. This is not, strictly speaking, a mistake. The printer expected to fill this in by hand, but just as with many incunables that are missing their intended initial letters, it was never done. This recalls the issue of the intended reader: who, exactly, was expected to know the correct Greek phrase and who would have had access to a manuscript of Pliny to obtain this knowledge?

263 fol. 2r. The absence of the Greek in the printed edition is understandable if there was no Greek type. It is less so in a manuscript, unless the scribe did not know Greek well enough to copy it.
There is a blank where the Greek should be, and Petrarch has not annotated it. However, the first word has changed again, to the adverb *iam*, from the conjunction *an* or the preposition *ante*. P1 (6802), on the other hand, has no blank space on the line. It reads, instead, *[an?] omnia attingenda que Greci *tes encucli pedias* vocant.* In this case, the scribe has transliterated the Greek into Roman letters, thus indicating that they had sufficient familiarity with the language to do so and that they were aware that their readers might not. P1 (6802) begins with Suetonius’ *Vita Plinii*, and also includes the extra lines appropriated from Pliny himself:

...hic in his libris xx milia rerum dignarum ex lectione voluminum circiter *duo* milium *conplexus* est. Primus autem liber quasi index xxxvi librorum sequentium consumationem *tocius* operis et species *continet* titulorum.

De Spira’s version of these lines is almost identical to P1 (6802), with only a few orthographical differences. Moreover, P1 (6802) begins, right after the *Life of Pliny*, with the following salutation: *Plinius Secundus Vespasiano suo salutem*. This is evidence that if any Petrarch-annotated manuscript served as a source for de Spira, P1 (6802) is the most likely candidate.

However, prior to Sillig’s 1831 edition, which used what at the time was the oldest known Plinian manuscript, manuscript B, the editions of Pliny ran somewhat short, because the editors did not have access to manuscript B. Similarly, de Spira’s edition also ends a bit short, with the following sentence from Book 37 (fol. 356v):

*ficticiis pustulae in profundo apparret, scabritia in cute in capillamento frigoris inconstantia, priusquam ad oculos perveniat desinens nitor.*

The modern editions say for this sentence:

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264 fol. 2v.

265 As is clear from the List of Manuscripts, several others predate B, but were either unknown in 1831 or contain only excerpts.

266 Reeve 2007: 111. B only contains Books 32-37 and has not yet been digitized.
These are minor textual variations, the result of later manuscript recension. More concerning, however, is that there are a few lengthy paragraphs missing which follow this line and are the true end of the Historia Naturalis. As noted above, it was not until the 19th century that a manuscript was found that confirmed that the early editions of the Historia Naturalis had been cut short because of the fragmentary nature of the available manuscripts. P1 (6802) ends abruptly, cut even shorter, at Book 37.199 (72), with the line experimenta pluribus modis constant: primum pondere. The remainder of the sentence is missing, along with the one beginning with ficticiis, which de Spira retains. P2 (6805) ends just prior to the Life of Pliny, with (fol. 551r),

Post haec corpore fictitiis pustullae in profundo apparent scabritia in cute in capillamento frigoris inconstantia priusquam ad oculos perveniat desinens nitor.

In this case, P2 (6805) very closely follows P1 (6802), evidence (but not proof) that both manuscripts had a common ancestor. P2 (6805) however, also includes a final postscript (fol. 551v):

Plinius hystoricus cognomine sum que secundus
Qui totum quod terra capit zelum que perambit
Stanxi terdenis lepide septem que libellis
In quibus et duo sunt ingenti milia digna.

I am the historical figure Pliny, Secundus by surname,
Who strives to emulate all that the earth takes up,
I have [beaten] 37 books (scrolls), with pleasure,
In which there are 2,000 extraordinarily worthy facts.


The punctuation of P2 (6805) is clear on this: Post haec corpore is the beginning of this sentence, whereas in other mss., ficticiis is the first word.
The idiosyncrasies of this postscript indicate a late medieval composition: its use of *hystoricus* to refer to Pliny, who by this date was an historical figure; the unattested verb form *stanxi* (perhaps from *stangare*, very late Latin/early Italian, “to beat”); the odd use of *que* in the first three lines. All of these features demonstrate late Latin stylistics and a tenuous grasp of classical Latin. The postscript is therefore an odd addition to what is meant to be an accurate copy of Pliny’s text. However, the use of the first person to make an historical figure come to life or to anthropomorphize an inanimate object such as the book or text itself, was commonplace in the early modern period. De Spira himself uses the device in the colophon to his 1469 Pliny:

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Quem modo tam rarum cupiens vix lector haberet:
Quiquam etiam fractus pene legendus eram:
Restituit Venetis me nuper Spira Ioannes:
Exscriptitque libros aere notante meos.
Fessa manus quondam moneo: Calamusque quiescat.
Nanque labor studio cessit: et ingenio.
MCCCCLXVIII
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Scarcely could a reader who so desires it find something as rare as I am, who, though I had been nearly fractured, must be read: Recently, Johannes de Spira restored me in Venice: And he copied out my books, though the bronze did the actual writing. I am weary, and I heretofore advise the multitudes: let the quill rest. For it is through devotion that labor comes to an end, but also through ingenuity. 1469

This constitutes a very early expression of the modern sentiment to “work smart, not hard.” De Spira has not simply written about himself in the third person, a common literary trope, but he has personified Pliny’s text, which is not a neuter thing, but masculine, as though it were a living man. The wonder of a sentient ancient text is not, however, what is “rare”. The novelty of this edition lies in the fact that de Spira has managed to pull Pliny’s text together (*restituit*) and print it.
De Spira was well aware of the state of Pliny’s text, and the fact that over the centuries it had been not only corrupted but taken apart to make florilegia and herbals. By printing it, he is therefore performing two services. He has unified the entire text, making it whole, and he has also produced what he deemed to be an uncorrupted version of it. This is a crucial point, which explains why de Spira states that his version of Pliny’s text is “whole” and healed from its fractured state. This can only be taken as a denigration of earlier versions, not printed but in manuscript form. The lines about the printing press doing all of the hard work therefore have a secondary implication. De Spira is both proclaiming the benefits of the printing press and declaring that his own printed version of Pliny is the new authoritative version, precisely because it has been set in type. Without saying as much, de Spira is referencing what the Italian humanists had been lamenting since at least Petrarch and Lorenzo Valla, namely, the corruption of classical texts in the manuscript tradition. In Valla’s time, *recensio ope codicum* (manuscript collation) had been replaced with *recensio ope ingenii sui* (recension from expertise). The inherent arrogance of such an approach to manuscript and textual collation seems obvious to the modern eye. But for those in the Renaissance, long frustrated by the variance and inconsistencies of the manuscript tradition, and the impossibility of establishing which version of a text was the correct, authentic one, reliance on one’s own critical assessment and reasoning skills seemed like a necessity. What de Spira was offering to the humanists of his time was an established, “authentic” Plinian text. It is therefore a cruel irony that it was so vehemently rejected by the Italian humanists.

However, de Spira’s motives for printing Pliny, as opposed to other ancient writers, remain uncertain. The only insight he provides is in his colophon, and what he says in those of
his other printed books is transferable to his edition of Pliny. For example, in the colophon of his
edition of Cicero’s *Epistulae ad Familiares*, also from 1469, he refers to the printing press:\(^{269}\)

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Primus in Adriaca formis impressit aenis
Urbe Libros Spira genitus de stirpe Iohannes
In reliquis sit quanta vides spes lector habenda
Quom Labor hic primus calami superaverit artem.
MCCCCLXVIII
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First in the Adriatic city did Johannes, begotten of
Spira, print books on brazen forms.
And you, the reader, should see just how much hope there is in the future,
When this, his first work, has surpassed the “skill of the quill”.
1469

Two important points can be made about this. First, Johannes refers to himself in the third
person,\(^{270}\) and does not personify the text itself, as he would do for Pliny’s. Second, he advertises
the printing press by emphasizing how it can surpass the skill of any scribe. Just a few months
after this first Cicero edition, de Spira printed a second one,\(^{271}\) and this time produced 300
copies.\(^{272}\) The second edition is listed as being before September 18, 1469. The colophon reads
(fol. 136r):

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Hesperiae quondam Germanus quosque libellos
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\(^{269}\) ISTC entry: https://data.cerl.org/istc/ic00504000. Digital copy:
http://www.internetculturale.it/jmms/iccvviewer/iccu.jsp?id=oai%3A193.206.197.121%3A18%3
AVE0049%3AVEAE129998&mode=all&teca=marciana.

\(^{270}\) The oblique reference to Venice as the city on the Adriatic Sea is likely just to keep the meter,
but referring to himself as *genitus de stirpe Spira* can be seen as a pun referring to the contents of
Pliny’s text, because while the term *stirps* refers to his lineage and family, it is also a word for a
plant or root.

\(^{271}\) This is the one referred to by the Librarian in the 1827 notes for the Biblioteca Nazionale
Marciana copy. According to them, this second edition was printed using the same typeface and
forms as the earlier edition, or whatever exactly is meant by “characters”.

\(^{272}\) ISTC entry: https://data.cerl.org/istc/ic00505000. Digital copy:
https://digi.vatlib.it/view/Inc.II.2.
The German once acquired a number of books from Italy (a western land): Behold, he himself is here to provide more. For a man, Ioannes, who deserves marvel for his ingenuity and skill, very famously showed how books can be inscribed in bronze. Spira favors Venice: for he has twice completed in the fourth month this tercentenary work of Cicero.

In this case, de Spira himself is again the subject of the colophon, although here he is simply called “The German”. Just as with the first edition, he references some of the history of the transmission of Cicero’s text, calling it tercentenary in reference to a manuscript copy of Cicero produced some 300 years prior. This may have been at Monte Cassino or in some German institution with which de Spira was familiar. What is most interesting about this colophon is the first two lines and the assertion that a number of books were “brought out” by “The German”. De Spira was in fact German, and settled in Venice. He had learned the skill of printing in Germany, but very little is known of his printing experience prior to his arrival in

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273 I have taken *bis* as an adverb with *peregit*, despite its odd placement, because it makes sense given the prior edition, and also because a 600-year anniversary is much harder to locate.

274 See Gottlieb (1890) for a register of medieval manuscripts, *Über Mittelalterliche Bibliotheken*. The title *Epistulae Familiares Tullii* is provided among others belonging to Magister Wilhelm Paulus of Antwerp (Gottlieb 1890:11) ([http://hdl.handle.net/2027/njp.32101074714310](http://hdl.handle.net/2027/njp.32101074714310)); See also G. Becker’s *Catalogi Bibliothecarum Antiqui* (Bonn, 1885).

The term *Hesperiae* is problematic. In antiquity, it would have been used to refer to Italy, but the lack of a preposition with the verb *aufero* makes it difficult to determine if it is genitive or dative. If the former, then *Hesperiae* could go with *libellos*, i.e., books from Italy, or even with *Germanus*, in which case de Spira would be asserting his new status as an Italian of German origin. If it is dative, then it could go with *libellos*, but could also go with the verb *aufero*, i.e., books brought to Italy. Cicero and Pliny were Romans whose works did not need to be brought to Italy, unless de Spira is referencing newly discovered manuscripts. The use of the verb *aufero* is also peculiar. It often has a negative connotation of snatching or carrying off, but it can also be used to refer to the products of one’s labor, which ties in more generally with de Spira’s colophons. Here, too, as in the 1469 Pliny and in the first Cicero edition, he makes sure to refer to his own *ingenium* and *ars*, although in this case, the *ars* is not scribal skill, but printing skill and *ingenium* is not a reference to humanistic *paideia*, but to his own expertise in printing, which puts him at the level of a *magister*, one who can teach his skills to others.

These colophons give very little insight into de Spira’s reasoning for printing the *Historia Naturalis*, beyond trying to prove his own skill by producing a printed edition of a notoriously corrupt and difficult text. The discourse surrounding the early printed editions of Pliny, however, was more complex than dethroning a self-proclaimed expert in a new technology, and the

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276 This fact is perhaps not quite as impressive as de Spira thinks. The art of printing (in contrast to book binding and decorating) had been taught to the Italians by German printers who had been working there for many years. Italy may have been the first country to which Germany exported the new invention of printing, in 1465 (Steinberg 1996: 30). But the first printing press in Italy was located not far from Rome, in the Benedictine monastery of St. Scholastica in Subiaco, which produced four books between 1465 and 1467 (Harthan 1961: 10). From there, the trade made its way to Venice, where Manutius and others soon dominated it (Steinberg 1996: 31). However, Venice was the only Italian city to preserve its printing tradition into the 16th century (Steinberg 1996: 35). Despite the Church’s heavy influence on and censorship of the trade, Rome never really competed with either Naples or Venice for preeminence in the trade.
question remains as to why de Spira saw Cicero’s *Epistulae* and Pliny’s *Historia Naturalis* as worth his effort. More insight can be found in the text of the grant he received, in which he was given full printing privileges for a span of five years in Venice. Dated September 18, 1469, the grant begins by declaring that the art of printing (*ars imprimendi libros*) has been introduced (*inducta est*) into their esteemed state by the “Master de Spira”, through whose efforts, dedication, and expertise (*per operam, studium et ingenium*) it continues to grow in popularity and become more common. De Spira, the grant notes, had just printed Cicero’s *Epistulae ad Familiares* to great acclaim (*summa omnium commendatione*) as well as Pliny’s *Historia Naturalis*, a “noble work” (*nobile opus*). Both works were printed with the largest type and with the most beautiful letter-forms (*in maximo numero et pulcherrima litterarum forma*), to bring prestige to the state of Venice. It is therefore in their communal interest to financially support de Spira and his printing press:

praestanda sit materia ut alacrius perseveret, artemque suam imprimendi potius celebriorem reddere, quam desinere habeat.

Let the necessary materials be provided, so that he might continue more happily, and that he might consider his art of printing something quite celebrated, rather than something to give up.

In order to ensure this outcome, and as a result of de Spira’s having petitioned for it, the councilors who have authored the grant assert that for the span of five years, none besides de Spira shall be allowed to print anything at all in the state of Venice:

nemo omnino sit qui velit, possit, valeat, audeatve ut exerceat dictam artem imprimendorum librorum in hac inclyta civitate Venetiarum et districtu suo, nisi ipse magister Ioannes.

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277 Digital copy, including transcription: [http://www.copyrighthistory.org/cam/tools/request/showRepresentation?id=representation_i_1469](http://www.copyrighthistory.org/cam/tools/request/showRepresentation?id=representation_i_1469)
Let there be absolutely no one who has the desire, is able, has the strength, or dares to exercise the aforementioned art of printing books in this renowned state of Venice and its district, unless it be Master Johannes himself.

The grant finally declares that anyone else caught printing books will be fined and have their equipment confiscated. Similarly, the importing of printed books from outside Venice is forbidden.

From the text of the grant, two hypotheses arise. First, de Spira saw Pliny and Cicero as particularly worthy ancient authors. Specifically, they were authorities of their genres. Second, de Spira knew that in order to receive financial support and general approbation regarding the relatively new technology of printing, he needed to produce especially worthy printed texts. From the fact that de Spira approved of Pliny one can extrapolate that he was also very much approved of in Venice. This is entirely plausible, since Petrarch had ties to Venice, influence throughout Italy, and had circulated his own copies of Pliny among his peers.\textsuperscript{278} A third proposition is as yet unprovable, but worth considering, namely, that de Spira also knew of Guarino Veronese’s plans to print his own critical edition of Pliny in 1468. Whether those plans were ever serious or had simply been discussed, de Spira recognized that Pliny’s text would be in demand. Finally, there may also have been economic forces at play. According to Neri Pozza

\textsuperscript{278} McHam 2013: 68. “Petrarch’s career as an intellectual, occasional diplomat, and cultural advisor to the rulers of Ferrara, Padua, Milan, and to the Holy Roman Emperor meant that he had many opportunities to share his knowledge of Pliny with his patrons and fellow scholars.”
(1984), because of the limitations of the printing press, the earliest Venetian printers were forced to make editorial and textual choices that would shock their readership, which was more educated and cultured than the audience of a modern editor. Pozza is referring to the sophistication of the Renaissance humanists who had so assiduously hunted down, copied, edited, annotated, and preserved classical manuscripts. For that audience, the mistakes, lacunae, and other shortcomings that marked the infancy of a new technology would have been unforgivable. In addition to economic forces, in his re-reading of the text of the Venetian grant, Barbieri (2021) suggests that de Spira’s ability to set up his printing workshop in Venice was political. Citing Zorzi (1987), Barbieri argues that there was a connection between de Spira and

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279 This includes, e.g., de Spira not having Greek type, but also the fact that printers had to rely on such subsidies as de Spira’s grant: *affrontarono problemi di tecnologia tipografica e di scelte di testi col consiglio e il sussidio di modesti grammatici; scelte che farebbero paura alla congrèga più coltivata che editore moderno mettesse insieme.* (“They dealt with issues originating in the technology of printing, and in (having to make) choices of text with the advice and subsidies of humble grammarians; choices that would horrify a group (of readers) that was more cultured than a modern editor could put together.”) Pozza also argues that market forces had much to do with the editorial choices we see: *Invece, salvo casi isolati, e talvolta minori, è tanto se si riesce a leggere un elenco di prezzi di libri in commercio nel 1484, mentre manca ancora la possibilità di confrontarlo coi costi d’altri merci d’uso commune.* (“Instead, save for isolated, and even at times very minor cases, the most one can do is read a list of the prices of books for sale in 1484, whereas we are still lacking the possibility of comparing that price with the cost of other goods in common use.”) (Pozza 1984: 12) The list of book prices is not fiction. Pozza is referring to the Codex Marciano. It. IX 45, reprinted in Brown (1891: 431-52), *The Venetian Printing Press*. Regarding the comparative cost of a book, Pozza cites two examples. First, Panormita was only able to purchase a copy of Titus Livius in Firenze, at a cost of 120 gold scudi, because he had sold his farm. Second, Poggio bought a farm by selling a Titus Livius codex. According to Barbieri (2021: 23), the first edition of Pliny sold for 8 ducats, the equivalent of an entire month’s wages for a foreman.

280 See Pozza (1984), and a chapter called *L’editoria veneziana da Giovanni da Spira ad Aldo Manuzio*. Venetian printers of the 15th century include, along with Johannes de Spira and his brother Vindelinus, who succeeded him, Nicolas Jenson, Cristoforo Valdarfer, Giovanni da Colonia, Erardo Ratdolt, and Lorenzo Canozi.
Cardinal Bessarion, who had donated his library to San Marco in 1468.\textsuperscript{281} Bessarion, originally from Constantinople, had been focused on the establishment of a robust library as a direct result of the Ottoman capture of the city in 1454, when not only were many manuscripts destroyed, but the study of anything beyond the Qur’an was restricted.\textsuperscript{282} The implication is that Bessarion saw the Republic of Venice as an ideal repository for the Greek and Latin manuscripts he had amassed and which he wished to be made available to a broader audience. The Biblioteca Marciana was a public library, and the grant provided to de Spira can therefore be seen as a concerted effort to promulgate the mission of public, humanistic scholarship.

Yet even a possible connection to Bessarion’s humanistic interests does not explain why de Spira printed the *Historia Naturalis* and the difficulty of assessing his rationale is increased by his early death. Much of Pozza’s focus is on the bibliographical details of the early printers, their typeface, paper, etc. However, of de Spira, he says,

Vive con lui il fratello Vindelino che rivelerà qualche anno più tardi, singolari attitudini di editore. È impossibile, allo stato degli studi, separare i due maestri…\textsuperscript{283}

His brother Vindelinus, who a few years later would reveal the singular disposition of an editor, lived with him. Based on the state of their current scholarship, it is impossible to separate the two masters...

\textsuperscript{281} Technically, the library was donated to the Senate of Venice, and it was stored in the library of St. Mark’s, the Biblioteca Marciana. See Barbieri 2021: 25. *Vista anche la natura privata del documento e il suo probabile riferimento a contatti col patriziato cittadino, c’è chi suggerisce che in realtà l’insediamento di Johann in città fosse fortemente legato a interessi politici, e forse alla figura del card. Bessarione, che, guardo caso, proprio nel ’68 donava la propria biblioteca a S. Marco… Cf. Marino Zorzi. (1987: 23–85). La Libreria di San Marco: Libri, Lettori, Società nella Venezia dei Dogi. Milano: Mondadori.

\textsuperscript{282} See Labowsky 1979.

\textsuperscript{283} Pozza 1984: 18.
This is in spite of the fact that the privilege to be sole printer in Venice was granted specifically to Giovanni (Johannes), not to Vindelino. Like others, Pozza picks up on the fact that after Johannes’ death in 1470, Vindelino not only completed the *De Civitate Dei* of Saint Augustine for his brother, but went on to publish fifteen more books. This implies that Vindelino was well versed in the family business and likely had training similar to his brother’s.\(^{284}\) For Pozza, the choice of texts made by both brothers is as much an indication of their own education and interests as of their access to reliable *grammatici*. Pozza therefore sketchily delineates the genres of texts published in this period, between 1469 and 1480.\(^{285}\) Out of 596 editions, some 130 are *classici*, with another 76 being related to the classics, such as grammars and compendia. Roughly theological texts make up 121, whereas 100 are either juridical or scientific, with Aristotle included in the latter. Only 95 are in Italian. The import of this analysis is not whether the classifications cited by Pozza are correct\(^{286}\) or overlap one another, but that they can be roughly divided between religious and classical. Statistically speaking, then, de Spira was most likely to begin his career by printing texts that fell into one of these two categories.

\(^{284}\) Pozza 1984: 19. *Dovevano essere - a parere di chi scrive - opere già studiate e preparate se Vindelino poteva impiegare nella sua officina dei buoni grammatici e pubblicare a Venezia fino al 1477 il De deorum natura (IGI 2878) e il De Officiis (IGI 2888) di Cicerone, e, per la prima volta - come abbiamo scritto - , la Bibbia per le cure del Malermi, la Divina Commedia con il “supposto” commento di Benvenuto da Imola (IGI 358) e il Canzoniere del Petrarca (IGI 7517). (“They had to be - in the opinion of yours truly - works already studied and ready, if Vindelino was able to employ in his workshops skilled grammarians and to publish in Venice up until 1477 Cicero’s *De deorum natura* (IGI 2878) and *De Officiis* (IGI 2888), and, for the first time, as we have already said, the Bible, edited by Malermi, the *Divine Comedy* with the ‘supposed’ commentary of Benvenuto da Imola (IGI 358), and Petrarch’s *Canzoniere* (IGI 7517).”)

\(^{285}\) Pozza 1984: 12n7.

We know that de Spira’s first three books (two of Cicero and the Pliny) were printed before September 18, because that is the date of the Venetian grant, and that he died in 1470, before he had finished De Civitate Dei of Augustine. Gerulaitis (1976) notes that because of de Spira’s untimely passing, it is hard to say what effect the five years’ monopoly that was granted to him would have had on Venetian printing, but that it must, short as it was, have deterred other printers and book collectors. In fact, we need not speculate about this, since both printing and book collecting are expressly forbidden in the text of the grant. Santoro (2008) confirms that it became a common practice in Venice to grant to any printer who requested it a similar privilege to publish a particular work exclusively for a set number of years. As a result, while we know of around twelve printers who established themselves throughout Italy in 1470, only two were located in Venice: Nicolas Jenson (c.1420-1480), printer of the works of Julius Caesar in 1471, and Cristoforo Valdarfer (active late 15th century), who printed Boccaccio’s Decameron, also in 1471. Thus, in the year immediately following de Spira’s death, he was supplanted, and a thriving printing culture arose in his place. Jenson, in particular, was a prolific printer and typeface designer who was said to be able to run around a dozen presses at once by 1477. The 1470s therefore saw the immense growth of the Venetian printing market. Yet this did not last. With regard to the rapid rise and collapse of the printing market in Venice, Gerulaitis claims that the main cause was the “overproduction of Latin classics.” Up until 1472, there had been 154 books printed in Venice, of which the majority, some 83, were “classical Latin texts” or of a

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288 Santoro 2008: 75. Successivamente fu riconosciuto dalle autorità locali per lo più…il diritto per uno stampatore che ne inoltrasse richiesta, regolarmente accolta, di potere imprimere egli solo nel territorio una specifica opera per un numero di anni stabiliti di volta in volta.

related genre, such as commentaries. The very next year, however, in 1473, of the 25 books printed in Venice, only two were classical Latin texts. Gerulaitis considers this the direct effect of market oversaturation in the years prior. The market may have been flooded with classical texts, or it may simply have been the case that those texts in the best shape for printing had already been published. Either way, together with Pozza’s calculations, Gerulaitis’ numbers do at least indicate that classical texts were popular and therefore worth the investment for a printer.

A further question concerns the location in which de Spira learned the art of printing. There are no archival materials to consult, but we do know that he was from Mainz. Gerulaitis speculates, based on the age of his Italian wife Paula, that he may have been in Venice by 1460. If so, Gerulaitis suggests a number of possibilities: that de Spira worked in a printer’s shop in Mainz in his youth; or that he returned to Germany after his marriage to do so; or that it was his brother Vindelinus who had mastered the craft; or even that de Spira had simply been a publisher who hired others with the actual skill of printing. The variance between all of these scenarios has the effect of underlining just how little is known of de Spira’s education and training. Barbieri (2021) surmises that sometime between 1460-61, de Spira found himself in Mainz, where he was in direct contact with the circle of early typographers and printers around

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290 Gerulaitis is citing Scholderer (1949: 133) “Printing at Venice”.

291 It should be noted that there are other, less obviously economic, factors that may have been at play. For instance, it is possible that the classical Latin texts that could even be collated and printed were few and that by 1473, the supply of printable ancient texts had simply run out.

292 Already in the 1460s there were a number of print shops working with movable type in Mainz. Nicolas Jenson had gone to there in 1458 to learn the art of movable type, having been sent by King Charles VII of France, because at that time, he was running the French Royal Mint.

Gutenberg. He therefore dates de Spira’s arrival in Italy to after the sack of the city of Mainz in 1462. Regardless of whether it was in 1460 or 1462, soon after his arrival in Italy, he was married to Paula. We do know that he was in Venice prior to 1468 and that he was the first printer active there.

What is worth noting, considering the reactions to de Spira’s edition of Pliny, is that after his death, his brother Vindelinus continued on as a printer himself until 1477, publishing mostly Latin texts. Unlike his brother Johannes, Vindelinus employed Giorgio Merula and Francesco

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294 Barbieri 2021: 22. *Forse nel 1460-61 si trovava a Magonza, in stretto contatto con l’ambiente dei prototipografi vicini a Gutenberg.*

295 On October 27, 1462, Archbishop Adolf II von Nassau, who had been appointed to the city of Mainz by the Pope, sent troops into the city, which they plundered. Some 400 people lost their lives. The reason for the sacking of the city was that the people supported Archbishop Diether von Isenburg. In the aftermath, the survivors of the city were stripped of their property, which was divided among Adolf II’s supporters.


297 See Santoro 2008: 79. *Johann muore pochi mesi dopo, quando aveva avviato al torchio la composizione finita del De civitate Dei di Sant’Agostino. Nella soscrizione al volume, datato 1470, il fratello Wendelin annuncia ufficialmente di essergli succeduto.* (“Johannes died a few months later, when he had started at the printing press the finished composition of *De Civitate Dei* of Saint Augustine. In the volume’s colophon, dated to 1470, his brother Vindelinus announces officially that he has succeeded him.”)
Filelfo as correctors.\textsuperscript{298} The 1470 \textit{De Civitate Dei},\textsuperscript{299} begun by Johannes and completed by Vindelinus, therefore has the following colophon:

\begin{verbatim}
Qui docuit Venetos exscribi posse Ioannes
Mense fere trino Centena volumina plini
Et totidem Magni Ciceronis Spira libellos:
Ceperat Aureli: subita sed morte perentus
Non potuit Ceptum Venetis finire volumen
Vindelinus adest eiusdem frater: & arte
Non minor: hadriacaque morabitur urbe.
MCCCCLXX
\end{verbatim}

Johannes, who taught the Venetians that in nearly 3 months
100 volumes [=copies] of Pliny could be printed,
and the same number of books of the great Cicero,
had taken up Aurelius. But dying a sudden death
he could not finish the volume begun in Venice.
The brother of this very man, Vindelinus, is here, and his skill
is no less. He will remain here in the Adriatic City.
1470.

There is no explanation given regarding the choice of classical texts. The only rationale that can be extrapolated is that Cicero was a monolith, whose very name was revered and authoritative enough to warrant the printing of his works. Pliny, as we have seen from the 14\textsuperscript{th}-century humanist responses to Plutarch’s championing of him, was, in addition to being admired, seen as a challenge. This would have been the case even had the \textit{Historia Naturalis} survived in only one manuscript. But the difficulty of identifying an ideal copy from which to print added to the prestige of producing all 37 volumes. It is clear in all of the colophons associated with Johannes de Spira that it is only in the Pliny text that any reference is made to the art of medicine. Only Pliny’s work is described as “fractured”, yet also “noble”. The implication is clear: de Spira has

\textsuperscript{298}Gerulaitis 1976: 22.

produced a printed, authoritative version of Pliny’s text, and in so doing has provided to humanist scholars a mended, definitive, and stable edition. This may have been simply advertising, but the humanist scholars took the claim at face value and when de Spira’s feat, a marvel in the world of printing, did not measure up in the context of textual criticism, the ensuing controversy led, first, to a critique of the editing associated with the novel art of printing, and then to criticism of Pliny himself.

2.3 The 1470 Roman Edition

The second edition of Pliny was printed in 1470 in Rome by Konrad Sweynheym (died c.1477) and Arnold Pannartz (died c.1476). Sweynheym and Pannartz were both, like de Spira, of German origin, although it is unknown if they were acquainted before they relocated to Italy. Also like de Spira, the origins of their knowledge of printing are murky, as is the reason they came to Italy. We know that in 1464 they both came to Subiaco, the Benedictine abbey where the earliest books were printed in Italy. There, they produced a work by Donatus, which is not extant. They also printed Cicero’s *De Oratore* (before September 30, 1465), Lactantius’ *De Divinis Institutionibus* (October 1465), and St. Augustine’s *De Civitate Dei* (1467). It was also at Subiaco that they developed in 1465 a “half-Roman” type, a transitional typeface that showed elements of the traditional German Blackletter typeface and the Roman type that was preferred in

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301 Sweynheym and Pannartz have long been associated with Gutenberg. For instance, Gottfried Zedler (1901, *Gutenberg-Forschungen*) argued that Sweynheym worked with Gutenberg from 1461-64 in Eltville. Possibly the provisional Abbot, Cardinal Giovanni Turrecremata (Jaques de Torquemada, 1388-1468), was the one who summoned them to Italy.
Italy, and which Nicolas Jenson was developing in Venice. In 1467, they relocated to Rome, where they fell under the patronage of Pietro and Francisco of the House of Massimo. The first work that they published in Rome was an edition of Cicero’s *Epistulae*. Their edition of Pliny came three years later, and was edited by the Bishop of Aleria, GiannAndrea Bussi, who had been their editorial director since they arrived in Rome.

The Sweynheym and Pannartz edition of Pliny does not rely on de Spira’s Venetian edition of the year prior, possibly because Bussi had his edition readied and collated before the Venice edition was printed. Yet, in another parallel to de Spira, the 1470 Sweynheym and Pannartz edition was also highly corrupt. Pliny’s text begins on fol. 3v, where the dedication to the emperor reads, *G. Plynius Secundus Novocomensis Domitiano suo salutem*. Thus, both the 1469 and the 1470 editions make the same, crucial error, because Pliny in fact dedicated it to Vespasian. Any hopes that the first readers of the 1470 edition may have had that it would supersede the 1469 edition in quality would have been immediately dashed. This also explains why the humanist and classical scholar Giorgio Merula (c. 1430-1494), who encountered the Roman edition in Venice in late 1470, fired off an invective missive to Bussi himself, lamenting the edition’s inaccuracies. Meanwhile, also enraged by the edition’s defects and errors, Niccolò Perotti (1429-1480), poet laureate of Bologna, Archbishop of Siponto, and author of the

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302 See Davies (1995). Again, the role played by the phantom 1468 edition is worth considering: was Bussi simply trying to beat de Spira to the punch (and failed), or were they both trying to beat Guarino Veronese to the punch?

popular Latin grammar *Rudimenta Grammatices*, wrote in 1470 a proposal for state censorship in Rome that was focused not on morality or religion, but “quality control”.

Yet despite these negative reactions, the 1470 Sweynheym and Pannartz Roman edition provides historians of book printing with pertinent and crucial information. Unlike with de Spira’s editions of Pliny and Cicero, there is a preface and a dedication to Pope Paul II, in which readers gain far more insight into the *why* of Pliny’s popularity than is found in either de Spira’s colophon or the Venetian grant. The preface begins on fol. 1r:

Iohannis Andree Episcopi ad pontificem summum Paulum. II. Venetum. Epistola.

Properatio omnis iure reprehendi solet pater beatissime Paule .II. Venete Pontifex Maxime. Iis in operibusque vix satis maturari queunt.

A Letter from GiannAndrea, Bishop, to the exalted Pope Paul II of Venice.

Most Blessed Father Paul II, Pontifex Maximus from Venice,
It is the custom, and rightly so, to put a check on any sign of haste. And so it is in this work, which can scarce be brought to fruition in a satisfactory manner.

Immediately, Bussi’s role as Bishop provides a rationale: he is answerable to the papacy and therefore must justify his editorial choices to a powerful religious body, in contrast to de Spira, who had only to find funding for his work. Bussi therefore begins by pointing out how the work in which he is engaged cannot be rushed, and then explains what this work entails (fol. 1r):

Quod ipse cum multis aliis in rebus sim expertus: In Plyniana tamen recognitione potissimum. Que eiusmodi quidem est: ut semper incipi posse: nunquam digne absolui ac pro autoris merito videatur.

The fact is that I myself have been involved in many other affairs, but most especially in the *recognition* of Pliny (the Elder), which, in fact, looks like this: it always seems as

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304 Monfasani 1988: 3. Cf. Mercati, G. 1925. “Per la Cronologia della Vita e degli Scritti di Niccolò Perotti Arcivescovo di Siponto.” *Studi e Testi* 44. Monfasani considers Perotti’s reaction to the 1470 Sweynheyem and Pannartz to be the first example of press censorship. It is interesting, therefore, that Perotti’s own text, the *Rudimenta Grammatices*, was printed by Sweynheyem and Pannartz in 1473.
though it can be initiated, but it is never finished, at least not in a worthy manner or to the author’s merit.

Bussi is a busy man, and the task that has most occupied him is not the editing and collating of Pliny, but rather, ensuring his recognition. Given the significance of the term *cognitio* in Pliny’s own work, Bussi’s use of the compound *recognitio* is pointed and purposeful. Bussi is engaged in a project of *reintroducing* Pliny to 15th-century Italy. However, this recognition is more complex than he expected. On first look, it appears doable, but once begun, the difficulty of completing it, much less in a manner worthy of the author’s status, becomes evident. An emendation of Pliny’s work, he claims, in addition to all of his other responsibilities, could not even be done in 90 years (fol. 1r):

*Sed quid facerem? Tot undique flagitantibus in nonum annum premi non potuit emendatio: ne futura quidem exacta post nonagesimum.*

But what could I do? With so many demands, coming from all sides, an “emendation” could not be printed in nine years, nor, indeed, would be completed after the ninetieth.

Bussi’s employment of the term *emendatio* is to be compared with its use a couple of decades later. For the emenders of Pliny, who were most active in the 1490s, an *emendatio* involved a particular amalgamation of manuscript collation, correction of perceived scribal errors, and critique of Pliny himself, once the “authentic” version of his text had been determined. In Bussi’s case, however, *emendatio* must refer to the process of preparing a manuscript for printing. The disarray that characterized the Plinian manuscript tradition was already well known, and de Spira’s edition the year prior had done nothing to remedy the problem. Hence Bussi’s hyperbolic claim to need ninety years to work on it. Moreover, he insisted, there were other Greek and Latin writers (or rather, all of them) who were deserving of attention and consultation, not just the best. For such a difficult task, not only are scholars of ancient literature (*sapientiae Principes*) needed,
but also the skilled artisans of the printing workshops. Despite this, there is clearly much in both trades that must be investigated (fol. 1r):


Again and again, all the Latin and Greek writers had to be revisited. And it was not merely the “princes of wisdom” who were in need of consultation, but also the craftsmen of all the workshops. Everything that is deep and abstruse in all their skill needs thorough and extremely diligent scrutiny; and it must be completely investigated.

This reads as a passive aggressive dig at de Spira’s edition, since, as we saw in the Venetian grant, the costs of operating de Spira’s officina (printing workshop), or, more specifically, the costs of paying his workers, were cited as reasons for the grant. It is implied in the grant that de Spira employed the very best in the trade. Yet the reaction to de Spira’s edition of Pliny was such that Bussi now questions the wisdom of these skilled artisans. There is evidently much in their skill that is penitus and abstrusus, inscrutable, which in this context is not a compliment.

However, Bussi’s reference to the “princes of wisdom” can also be taken as a critique of recensio ope ingenii sui, in a similar vein to de Spira’s. The hubris of the 14th-century humanists, Lorenzo Valla especially, had led to an overreliance on ingenium, on personal knowledge and erudition with regard to antiquity and ancient literature. The fragmentary and corrupted nature of the manuscript tradition, for many classical authors, forced such an overreliance. Bussi therefore acknowledges that the savvy of a trained humanist scholar is needed for a printed edition of a classical author. Yet this must be done in tandem with the highly skilled trade of printing from typeface. Employed in the printing shops (officinae) were proto-editors, who ensured that the product, which was the printed page, corresponded to the manuscript reference.

Therefore, in order to produce a superior product, Bussi has relied on the famed Theodore of Gaza (c.1398-c. 1475), who later in 1483 would be the first to translate Theophrastus’ corpus
into Latin. Already in 1470, Theodore was well established as a scholar of Greek and Latin, and therefore, in Bussi’s eyes, better suited to the work of editing Pliny than those employed in the officinae.\textsuperscript{305} By relying on Theodore of Gaza, Bussi is hoping that he can bring to an edition of Pliny what de Spira did not have: access to manuscripts and the skill to collate them. Thus, the readers will see for themselves how diligent Bussi and Theodore were, and it is by their collation that they should be judged (fol. 1r):

Codicum nostrorum lectio ubi in manus hominum venerint: periculum de sese prebebit nostre diligentie. Conferentur cum iis voluminibus que praeiis habebant omnia. Et ex librorum collatione iudicii censura constabit.

As to the reading of our manuscripts, when those come into the hands of men, it will reveal the proof of our diligence with regard to them. Everything that was contained in those earlier volumes will be compared with these new ones. And it is from collation of the books that any critique of our decision will be composed.

Bussi’s use of the term \textit{codex} to refer to his own edition of Pliny stands out. In the context of book printing, especially of ancient authors preserved in a number of manuscripts, the term \textit{codex} usually refers to the manuscript tradition. Bussi also uses the word \textit{liber} to refer to Pliny’s work, which would be innocuous if he were simply referring to the original ur-text, or to the fact that Pliny divided his work into thirty-seven books. Yet Bussi mentions collation of the books, which implies that there was more than just manuscript collation going on. He and Theodore were also engaged in emending Pliny’s text itself. In fact, in the next few paragraphs, Bussi explains how the two went about verifying the information in Pliny, struggling in particular with

\footnote{Bussi openly credits him: \textit{Iuvit sane ac mirifice iuvit conatus meos: quod minime dissimulandum arbitror: Vir summe eruditionis et sapientie Theodorus meus Gaza: atque ita quidem ut absque illo neque ego nec poene dixerim: mundus hoc munus fuerit impleturus. (“He has entirely and miraculously aided in my own attempts, a fact that I see little point in hiding. A man of the highest erudition and wisdom is my Theodore of Gaza, to the point that, but for him, I could not speak, not even under pain of punishment: this man, sophisticated as he is, is going to fulfill the task.”)}}
geographical data, and how they used works by other authors for reference. Their ability to do so was itself hampered by the fact that these other authors whom they consulted were going through the same processes of emendation, collation, and printing as was Pliny, a lengthy undertaking (sed diuturnitatis prope immense opus illud fuisset). For this reason, admits Bussi, it was the readers themselves who ended up being invaluable, thanks to their devotion to the study of classical literature (fol. 1r):

Et legentium plurimi sibi per sese multa in dies efficient eo studio meliora. Qua in parte omnes humanitatis sectatores obserco ut ad communem utilitatem ipsi quoque sollertia eorum inventa proponant in medium. Nihil enim unquam aut tam exiguum et parvum fuit aut adeo ingens atque immensus: quod non fieret a pluribus melius.

Many of the readers even produced for themselves, on their own, and on a daily basis, a multitude of better things, as a result of their dedication. In which case, I beg all those who pursue humanistic study, of their own accord and using their resourcefulness, to put forth their findings into public view, for common usage. For nothing has ever been either so narrow and small or so huge and immense, which could not be made better by many people.

In contrast to de Spira’s colophons, in two of which he is described as having “taught” others the art of printing, thus setting himself in the position of a magister, Bussi invokes the benefits of crowdsourcing. At the same time, he calls attention to the labor performed by his readers, describing his own undertaking as rudimentary (rudimenta sunt et inchoata quidem rudimenta nostre recognitiones). He notes that some of his readers are more knowledgeable than he is about certain parts (loci) of the text. Notably, Bussi uses the same terminology as Pliny, and Brunfels much later, of light (lux) versus shadow (tenebras); of the value of experience and trial and error (experiendo utique assidue prefecture); and of the known (cognitum) versus the unknown (incognitum). In justifying his work on Pliny, Bussi claims that he wrote about whatever in the “knowledge” of men (quicquid in cognitionem hominum) was deemed worthy of knowing (scitu dignum).
Based on this, Bussi argues that the *Historia Naturalis*, vast and immense as it was, was not sufficiently praised (*inexplicabili hoc ingentissimoque opere nulla oratione unquam satis laudato est complexus*).\(^{306}\) He also claims that familiarity with Pliny has pedagogical benefits in that, by comparing what was known in Pliny’s time to what is known in his own time, one can see how much progress has been made (*illum est maxime animadversu dignum et ante omnia memorandum discere quantum qua ve in parte vita ex eo tempore ad nostram profecerit tempestatem*).\(^{307}\) Thus, while other people are busy paying attention to the minutiae of collating Pliny’s text and focusing on the details, they are missing out on the broader value of this information, which is gained by comparison of the state of scholarship in Bussi’s own time with that in Pliny’s time (*huiusmodi multa lectione erudimur Plyniana dum queri ab eo cernentes singula acerrime: et minutissime*). Indeed, says Bussi, had some more modern knowledge been available to Pliny in his time period, he would surely have explicated it at length (*permulta tamen habere nos experimur: que ille non paucis voluminibus si suis quoque fuissent temporibus orta: explicuisset*). Pliny’s failings therefore have as much to do with the limitations of his era as with his own shortcomings. In particular, the art of printing is the greatest achievement of mankind.\(^{308}\) Thanks to the printing press, the danger of the works of ancient authors being lost to history is lessened. Moreover, simply by virtue of having access to printed editions of texts, scholars in the future will benefit and “be cultivated” (*unde futura omnis etas sit incredibiliter*).

\(^{306}\) fol. 1r-1v. The subject of *est complexus* is *opifex rerum deus*, which appears on an earlier line.

\(^{307}\) fol. 1v.

\(^{308}\) *sed age quid in omnibus hominum inventis tanti unquam fuit: ut cum impressorum nostrorum libraria arte digne conferri et antefieri queat?* (“But tell me, what, of all the inventions of mankind, was ever of such great import that it can worthily be compared with and preferred to the bookseller’s skill of our printing presses?”)
sese litterarum genere omni excultura). Had the ancients had this technology, not only would they have been prolific in using it, but their works would have been transmitted down to Bussi’s own time, more intact than the manuscript tradition allowed for (fol. 1v):

> que industria si fuisset apud veteres: profecto et Plynii nostri excellentissima alia monumenta et ceterorum celestium hominum nostra etate non desiderarentur.

If this industry had been available to the ancients, surely other quite excellent, monumental works (those of our Pliny and those of other heavenly individuals) would not have been lost in our own time.

The “lack” of ancient works in Bussi’s time is the reason for his decision to bring literal “recognition” to Pliny (equidem pater Beatissime Plynianam recognitionem...statueram...)

Where Bussi admits to going wrong is in thinking that he could have added anything of value to Pliny’s work that would recommend Pliny even more to the Pope (sed existimavi aliquid me adhuc posse addere huic prestantissimo operi). Therefore, Bussi has saved this task for him, in the next “addition and recognition” (quare in proximam additionem recognitionemque hoc illi munus reservavi). Bussi needs assistance, and so he pleads with his addressee to both provide help and embrace the work that he has begun, though not completed (fol. 1v):

> Tu si vides me iam tantopere vigilasse ut quod prope factu videbatur impossibile iam aliqua ex parte sit inchoatum: nunquam enim dicam perfectum: hanc meam voluntatem conatumque munificentissime pater pro opere computa: et volentem tanquam assequutum quod tam enixe concupivi gremio fove: iuvaque auxilio.

If you can see that I have already been vigilant to such a degree that what seemed nearly impossible to do has now begun in some part (I will never say “completed”), then consider, most munificent Father, this desire and attempt of mine as being for the benefit of this work, and please support me with an embrace (for I am willing, just as though I have achieved what I so strenuously desired), and provide me with assistance.

Bussi’s talk of imperfection and incompleteness appears out of place in the preface to a printed edition. One would presume that Bussi would not send his edition on to the printing press if it were not fully prepared. It is also unusual to include prefatory remarks lamenting the difficulty of
completing the project of printing a text, together with the ostensibly completed printed text.

What then could Bussi mean? It seems clear that Bussi does not think that a critical edition of Pliny can be either completed or skillfully edited and compiled by one or even two individuals.

He makes this clear in the colophon, which reads (fol. 375r):


Herennius Epraus of Lyon, and Justin the Martyr, formerly the Philosopher, and also Eusebius of Cesarea with the divine Jerome have earnestly sworn to posterity that they are going to copy and might diligently unite the exemplary works of those men and emend them with expert zeal. In the same way, I myself, first, in all the other books and then in Pliny in particular, forcefully plead for this to happen. I implore and I swear, lest a work of such great taste should relapse into earlier mistakes and inextricable shadows.

[This work] was only very slightly restored under the Roman Pope Paul II of Venice, and printed in Rome in the home of Peter and Francis of the House of Massimo, by the Magistri (Masters) who live next to the Campo dei Fiori, that is, Conrad Sweynheym and Arnold Panaratz [sic]. In the year of birth of our Lord, 1470, in the sixth year of this most felicitous and placid pontificate.

The four individuals mentioned, Herennius Epraus, Justin Martyr (c.100-165 CE), Eusebius of Caesarea (c. 260/265-339 CE), and St. Jerome (c.342-420 CE), were well-known biblical scholars and historians of Christianity, in whose eminent company Bussi evidently wishes to place himself and his work. Yet, based on this colophon and on the preface, it also appears that Bussi was aware that his readers might not be particularly thrilled with the final product of his edition. He tries to anticipate their criticisms by insisting that, first, Pliny’s text is deserving of preservation in print, and second, that this holds regardless of any mistakes in the text. In fact, it is better to have to emend the printed text than to let it disappear into history.
Conclusion

The prefatory remarks for the 1470 edition of Pliny focus on the inherent incompleteness of the tasks of collation and editing, declaring such work to be ongoing, in progress and the result of the efforts of many different people. Such statements may seem out of place in a printed text, which is generally presented as authoritative. But their author, GiannAndrea Bussi, was looking both backwards and forwards. He was reacting to the long traditions of textual transmission and criticism and the effects these had had on Pliny’s text since antiquity. At the same time, he was anticipating the ways in which contemporary humanistic scholars would react to his edition within those same traditions. This self-awareness on the editor’s part makes the 1470 edition stand out, in contrast to the editio princeps of the year prior. Johannes de Spira’s editor is not given a voice. Rather, the 1469 colophon praises the printer and his skills. Moreover, in the 1469 edition, the manuscript tradition is referred to only obliquely, when the text of the Historia Naturalis is called “fractured”. The relationship between the two editions is unclear, though it is evident that Bussi was focused on the production of a carefully edited edition, which would stabilize the text long enough for later scholars to be able to consult it, emend it, and, perhaps, to complete the work of editing it. On the other hand, de Spira saw his edition of Pliny as a challenge of his skill as a printer. He was likely aware of the fact that such a long text had been broken up into smaller, more easily digested parts in the early Middle Ages, and that even manuscripts that tried to preserve the entire text were incomplete. By printing all 37 books, he was bringing all these long-dispersed components back together. Yet, despite his intentions, the end product was simply an edition that stabilized the inaccuracies of the manuscript(s) consulted. De Spira was a printer, not a humanist scholar. As a result, his decision to print
Pliny’s *Historia Naturalis* in 1469 served as a catalyst for the late-15th-century frenzy of printed editions and emendations.

Yet, as we have seen, the precise reasons why such a lengthy and complex text with such a corrupted and fragmented manuscript tradition was printed by de Spira remain a mystery. We can identify the beginnings of a renewed interest in Pliny in the 14th century because of Petrarch’s appreciation for him. However, I would like, in anticipation of the next chapter, to briefly discuss one other Renaissance scholar whose study of Pliny added to general interest in him, which eventually led to de Spira’s decision to print him. Giovanni Boccaccio (1313-1375) was a friend of Petrarch’s and as discussed above, his hand has been identified in the Pliny manuscript P1 (6802), which was owned by Petrarch. Thus, the dissemination of annotated Plinian manuscripts and admiration for him as an authority can be traced back not only to Petrarch but to Boccaccio. McHam (2013) has written extensively on Petrarch’s adoption of Pliny’s views on fine art, especially painting and sculpture, which in turn affected Renaissance artistic endeavors and discourse. A similar argument can be made about Boccacio, whose close reading and analysis of Pliny “shaped the aesthetic vocabulary with which he described Giotto’s achievements in painting.” McHam’s focus is on the effect this had on the arts, but it is a useful claim for a discussion about the transmission of Pliny’s text over time and its relationship to the development of botany as a science and botanical Latin. Petrarch’s and Boccaccio’s reverence for Pliny meant that not only were his ideas transformed by them, but his language and vocabulary also gained a foothold. However, there is a crucial distinction to be made: Petrarch’s annotations and corrections of Pliny’s text, as found in P1 (6802) and P2 (6805), are

309 McHam 2013: 79.
substantively different from the work done by the later emenders of Pliny. Petrarch was correcting the text, not Pliny himself.

Thus, we can trace a course from the Renaissance interest in Pliny, promulgated by Plutarch and Boccaccio, which resulted in the production of annotated manuscripts of his text. This in turn functioned as an early precursor to the particular form of textual criticism to which Pliny would later be subjected. From here, the 1469 *editio princeps* attempted to provide an authoritative version of the text, but failed in part because the printers were more interested in demonstrating their skill than in editing the text. The 1470 edition marked a return to the humanist interest in collation and editing. Yet, despite the self-awareness the editor displayed in the preface, it nevertheless also resulted in a flawed version of the text, one that was now, in tandem with the 1469 edition, stabilized for posterity. These three steps (Renaissance-era annotations of Pliny, the 1469 *editio princeps*, and the 1470 edition) define one particular reception sphere for Pliny’s text, and involve not only its transmission and preservation in the manuscript tradition, but also its stabilization in the 1469 and 1470 printed editions. The product of this reception sphere, the result of the transformative process that underlies *allelopoiesis*, was two competing, stabilized versions of Pliny’s text, neither of which was accepted by 15th-century humanist scholars as authentic. By the last decade of the 15th century, then, the disarray that had marked the manuscript tradition had been transferred to the printed life of Pliny’s text. Thus, the reception sphere that includes the two earliest printed editions itself became a reference sphere for a second reception sphere. This transformation was the catalyst for a fierce debate between a group of scholars I refer to as the emenders of Pliny, to whom we will now turn in Chapter 3.
Chapter 3: The Rediscovery of Pliny: Knowability Beyond Nomenclature (Part II: Reactions to the Early Editions of Pliny)

Introduction

In the previous chapter, we discussed the manuscripts of Pliny the Elder’s *Historia Naturalis* and the first two printed editions, Johannes de Spira’s 1469 Venetian *editio princeps* and Sweynheym and Pannartz’ 1470 Roman edition, edited by GiannAndrea Bussi, Bishop of Aleria. For the development of botany, the significance of these manuscripts and early editions of Pliny is twofold. First, by annotating, copying, and printing Pliny, his status as a natural history authority was brought to the forefront. Second, the techniques of editing and printing resulted in the codification of the mistakes in Pliny’s text. Moreover, these editions did not go unnoticed by the contemporary scholarly community. As discussed in the previous chapter, despite the best intentions of de Spira and Bussi, the work of printing the thirty-seven books that make up Pliny’s text had an unexpected result, namely, the stabilization of the inaccuracies of the manuscript tradition. Because of this, the first two editions provoked a heated debate among Italian humanists about editorial practices, which resulted in even more printed editions of Pliny, many of which were edited by the same individuals who had critiqued the 1469 and 1470 editions. However, while this proliferation of editions addressed the issues embedded in the manuscript tradition and in the new technology of printing, by the end of the 15th century, a new debate had arisen. This was characterized first and foremost by a transition from criticism of the printers and editors of Pliny to criticism of Pliny himself as an ancient natural historian.

The main characters in this discourse, which is the subject of this chapter, were Giorgio Merula (c. 1430-1494), Niccolò Perotti (1429-1480), Niccolò Leoniceno (1428-1524), Pandulfo
Collenuccio (1444-1504), and Ermolao Barbaro (1454-1493). In this chapter, I will trace the transition from Merula’s and Perotti’s criticisms of Bussi’s editing and the technology of printing, to Leoniceno’s, Collenuccio’s, and Barbaro’s critiques of both the content of the Historia Naturalis and Pliny himself as a natural history authority. I will show how this shift resulted in the establishment of Barbaro himself as the authority on Pliny, and in the publishing of his own, 1497 posthumous edition, which superseded all of the prior editions in accuracy. The version of Pliny’s Historia Naturalis produced by Barbaro re-stabilized the text and reestablished Pliny’s authority, absolving him of the harsh criticisms leveled at him by Leoniceno. Almost 40 years later in 1530, Otto Brunfels, a German physician, would cite both Pliny and Barbaro as authorities for his own herbal, Herbarum Vivae Eicones, which I argue was crucial to the development of botany and botanical Latin.

The importance of this link, between an early, printed botanical text and Barbaro’s editing of Pliny, cannot be overstated. In the following chapter, I will delineate the ways in which Brunfels’ herbal contributed far more to botany and botanical Latin than has previously been thought. From this argument, it follows that Brunfels’ own influences are also more important than historians of science and botany have previously acknowledged. For instance, Davies (1995) sums up the 15th-century interest in Pliny in rather brutal fashion, claiming that the obsession with corrected editions of Pliny was more about Lorenzo Valla style arrogance with regard to classical literature than about true concern for valid textual transmission. Yet, by going through the responses of the humanists to whom Davis is referring, I will show that there was more to their “obsession” than hubris. The debates about and corrections of the printed

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310 Davies 1995: 247. “It was becoming plain to the humanists that Pliny’s Historia Naturalis was a marvellous canvas for the display of their talents, in emendation as well as in invective.”
editions of Pliny were part of a reception sphere that is defined in part by a concern for the establishment of an authentic version of Pliny’s text, and the transmission of it, for valid reasons, including accurate and reliable medical and herbal knowledge.

In addition to arguing for a more positive understanding of the motives of the humanist scholars of Pliny, I also reconsider the historical role played by them. I will show that the frenzy of printed editions of Pliny, the debates surrounding them, and the criticisms of Pliny himself, all culminated in Ermolao Barbaro’s *Castigationes* in 1493 and in his own edition of Pliny. It is important, however, to note that this project is about understanding the effects of the reception of Pliny on the earliest printed botanical texts. It is not about establishing an historical date for the development of botany as a scientific discipline. In contrast, Morton (1981) identifies 1483, the year that Theophrastus was first translated from Greek into Latin, as the advent of botany in Europe. Morton is therefore not concerned with the beginnings of a renewed interest in Pliny. Rather, he is concerned with the onset of the systematic, modern, scientific study of plants. Much like Davis, he dismisses the plethora of editions and commentaries on Pliny and Dioscorides in the 15th century as “simply concerned with textual problems.” This statement is technically true, but it overlooks the influence that these commentaries had on the earliest botanists. Morton provides a footnote in which he mentions that Otto Brunfels cites such commentaries, yet he somehow misses the significance of the connection between his work and theirs. It is no coincidence that Brunfels relied so heavily on the opinions of the emenders of Pliny.

311 Nor even of Dioscorides, a Latin translation of whose *De Materia Medica* was produced by Pietro d’Abano in 1478.

312 Morton 1981: 117. He does acknowledge that some “made some serious attempt to establish which native or known plants corresponded to the plants named, but far from adequately described, by Dioscorides, Pliny or the mediaeval herbalists.”
The reactions of the Italian humanists to the early printed editions of Pliny and their critiques of the author himself therefore constitute the broad focus of this chapter. There is a subtheme, however, which involves the technology and skill of printing itself, how it transformed in the brief period of time between the 1469 *editio princeps* and Barbaro’s 1497 edition. In the previous chapter, we looked at the manuscript tradition of the *Historia Naturalis*, and considered how Pliny’s text had been divided up and corrupted over the centuries. In the 14th century, the state of the manuscripts prompted concern on the part of Petrarch, who greatly admired Pliny. Petrarch’s anxiety about the state of his text foreshadowed the reception, a century later, among the Italian humanists of the early printed editions. Yet, crucially, none of the printers or editors of Pliny in the 15th century undertook a systematic collation of the manuscripts. Moreover, the immediate reactions to de Spira’s 1469 *editio princeps* and to Bussi’s 1470 edition were mostly critical of the editing and printing of the *Historia Naturalis*. However, these editions, combined with the others that were printed in the following decades, led to a far greater and more widespread readership of Pliny than the corrupted manuscript tradition had ever allowed. Correct or not, authentic or not, the printed editions of Pliny were presented as whole and intact and therefore presumed by their readers to have been carefully edited. Pliny’s text had in theory been stabilized by the various printed editions. Each new edition provided more material for a comparative study, the result of which would be the ideal version, based on the manuscripts, but also on previous printed editions.

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313 This was not done until the 18th century, when in 1763 the Italian nobleman Rezzonicus began the task. It was not completed until the 19th century, when between 1828 and 1829 Ludwig von Jan collated the manuscripts in Paris and Florence. See Chapter 2 for a fuller discussion.
This new state of Pliny’s text, in several printed editions, had its own issues, however, which derived from the novel technology of the printing press, which was still being perfected. Criticism of these flaws led to the eventual development of a critical scholarly trend that was focused, not on editing the printed text, but on critiquing Pliny himself as an authority. Thus, in the late 15th century, a number of scholars began to emend Pliny’s text, based not on a comparison of manuscript to manuscript (recensio ope codicum), but on their own knowledge of classical Latin and Roman history (recensio ope ingenii sui). Whereas the initial, early reactions of the humanists in the 1470s and 1480s concerned the text, by the 1490s the discourse had shifted to Pliny himself. In this chapter, the scholars involved in this new debate are referred to as the “emenders”, because they were focused on more than textual criticism. They were struggling with the concept of authority, and with the same tension between book learning and experience about which Pliny himself had written. The result of this debate was not simply a new edition of Pliny, but the development of a new skepticism about what constitutes an authoritative natural historical text. In particular, this suspicion was aimed at the botanical books within the Historia Naturalis, how they compared both to the medieval herbal tradition and to the experiences of medical doctors.

The failings of the first two printed editions prompted harsh criticism, which was in part predicated on the assumption that the new technology of the printing press ought to result in editions that superseded the manuscripts in accuracy and quality. Over time, however, as more and more editions were produced, especially in the 1470s and 1480s, many Italian humanists realized the futility of trying to control how the printers themselves prepared manuscripts for publication. The first two printed editions were not the result of traditional manuscript collation, in which an editor tries to reconstruct an authoritative version of the text by comparing and
The skill that the early printers were displaying was that of printing from type. For humanist scholars, however, an uncorrupted text was just as important as the novelty of a printed version of it. The transmission of Pliny’s text over the centuries had simply not been improved by movable type. With each new edition and printing, the “authentic” version of the text became more and more established. Yet this stabilization was not the result of repeated or consistent collation of the manuscripts by the editors. Rather, it was the product of the reactions of humanist scholars to the various editions. This process was post hoc and not pre-planned. For instance, following the publication of a new edition, there might be a dialogue, epistolary in form, between the editors and scholars with regard to the quality of the edition. This would lead to attempts to further perfect the text, and therefore to yet another new edition. By the last decade of the 15th century, this cycle culminated in a new edition of Pliny, edited by Ermolao Barbaro and published posthumously in 1497. This edition had been preceded by a number of tracts and pamphlets whose point was to highlight and correct the inaccuracies in the manuscripts and in the prior printed editions of Pliny, but also to bring attention to the mistakes that Pliny himself made. Between the editio princeps in 1469 and Barbaro’s edition in 1497, some fifteen other editions were printed, many of which were revisions produced by the same small pool of editors and printers. All of this activity was the direct result of the decision by de Spira and Bussi to focus their resources and efforts on printing Pliny.

In this chapter, we will therefore turn to the 15th-century reception of the two earliest printed editions of Pliny. We will focus on the substance of humanist complaints about the

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314 It is important to note that the manuscript(s) that served as references for de Spira and Bussi are unknown. There is, however, solid evidence to suggest, based on the Vita Plinii of Suetonius included in de Spira, that either P1 (6802), annotated by Petrarch, or one of its ancestors, was a reference. See Chapter 2 for a detailed discussion of the import of Suetonius’ Life of Pliny.
printed editions of Pliny and about Pliny himself, keeping in mind the issues of knowability and nomenclature. In the process, we will draw out the implications of the debate in which these individuals were engaged, which specifically appealed to Otto Brunfels several decades later. Brunfels’ 1530 herbal was meant to serve as a reference for other physicians and featured herbs that grew in and were well known in Germany. It therefore made sense for him to cite botanical and medical authorities such as Pliny, Dioscorides, and Galen, along with the best-known medieval herbals. However, Brunfels would also cite in his herbal the emenders of Pliny listed above, in particular Leoniceno, Collenuccio, and Barbaro, as authorities on botanical and Plinian matters both. In order to understand how these three scholars came to feature in an early botanical text, we need to understand how they themselves came to be so focused on Pliny in the first place. The emenders were neither botanists nor physicians. Their influence on Otto Brunfels’ work must therefore derive from their connection to Pliny and to his text, and from the work they did to correct and emend it. This chapter is therefore an attempt to understand the connection between the emenders of Pliny and Brunfels, whose project was primarily one of identifying German herbs with medicinal benefits. Secondary to this was mapping the German plant names onto ancient Greek and Latin plant names, which is essentially a process of verification. However, Brunfels did not blindly follow the authorities, especially if they were not ancient, and frequently inserted his own opinion into debates about an herb’s nomenclature and characteristics. Given this concern for accuracy, we can surmise that the work of philologists such as Ermolao Barbaro would strike Brunfels as pertinent to his own project. Moreover, in light of the connections made by Pliny between knowability and nomenclature, exactness in the Historia Naturalis takes on a new import: if there are mistakes involving nomenclature, our knowledge of the plants in question becomes unstable. I will argue in this chapter that the issue
of knowability expanded in the era directly preceding Barbaro’s edition of Pliny, in the thirty odd years following the publication of the first printed edition of Pliny in 1469. In this time frame, the idea of a plant’s knowability extended beyond the confines of nomenclature to the stabilization of the “authentic” reference text. By stabilizing Pliny’s text, the facts contained within it were also codified, which led to the transmission of a more reliable “knowledge” about plants. This is of course somewhat ironic, since Pliny had argued so emphatically in favor of experience over book learning. For him, the knowability of a plant would never have been contingent on the stabilization of a particular written text, because the extent to which a plant is inventa, or known, is determined by the extent to which an individual has experience with the plant.

In addition to placing far greater emphasis on authenticating text and author, the humanist scholars themselves began using the language of healing, as though the Historia Naturalis were a physical body in need of medical intervention. This metaphor appealed to Otto Brunfels, himself a practicing physician, and he used it in his own work, although he applied it more broadly than to one ancient text. While Brunfels’ appropriation of the healing trope cannot be said to have caused the development of the more systematic use of the language of botany, it was a crucial component of a broader discourse that resulted, eventually, in formal botanical Latin. Botanical Latin rejected the language of healing, in part because of its alignment with these humanist projects. Likewise, the results of the humanists’ work, which included stabilizing plant names, was of professional interest to Brunfels, who, as a physician, appreciated the practical benefits of such projects. Thus, this chapter will delve into the ways in which the reactions of humanist scholars to the two earliest printed editions of Pliny, the 1469 Venetian and 1470 Roman

315 And Dioscorides as well.
editions, form their own domain of discourse and reception sphere, and interact with and transform the features of Pliny previously discussed. Quite simply, it is precisely because Brunfels cited the emenders of Pliny that we can treat them and their own reception of Pliny as an intermediate locus of transformation. These emenders (and defenders) of Pliny were, as I will show in this chapter, therefore influential not only on Brunfels, but on the development of botany as a science. In Chapter 4, I will frame Brunfels’ work as an allelopoietic reception sphere for Pliny’s *Historia Naturalis*. As such, the connections between Brunfels’ herbal and the late 15th-century humanists who critiqued Pliny as an authority have their own origin in the transmission of Pliny’s text over time, its *Überlieferungsgeschichte*. In turn, Brunfels’ herbal would eventually serve as an allelopoietic reference sphere for the development of the field of botany and the systematization and formalization of its language of expression, Latin.

Ermolao Barbaro, in a 1491 letter to Pico della Mirandola, said that of all books, Pliny’s was the “most subject to great evils.” This danger was very real for Barbaro and his predecessor, Niccolò Leoniceno, who in 1492 published a catalog of the errors in Pliny’s text, along with those of other supposed medicinal authorities. Awareness on the part of the scholarly community of all of these flaws, in the editing, collation, and printing of Pliny’s text, was therefore the impetus for commentary as a new genre of literature. Kallendorf (2020) has written in depth about the development of Virgilian commentaries and their role in the reception and popularity of Virgil’s poetry in the Renaissance. Crucially, Kallendorf sees the printing press, or “print” more generally, as the agent driving this genre of Virgilian commentary. Similarly, when the 1469 edition of Pliny was published, its detractors inadvertently transformed the text into

something more robust, characterized not simply by what Pliny was thought to have written, but also by their own reactions to him as an ancient authority.317 In addition to commentaries, Kallendorf identifies editions and polemics as the products of the age of printing. To these, I will argue that another sub-genre can be added: the obsessive emendation of Pliny’s text. This trend was characterized by the push for the stabilization of the *Historia Naturalis* and resulted in the formation of an “authentic” version of it, specifically, Barbaro’s posthumous edition, published in 1497.

### 3.1 The Critics: Merula and Perotti on Bussi’s 1470 Edition

Giann Andrea Bussi, the editor of the 1470 Sweynheym and Pannartz edition printed in Rome, rightly predicted criticism of his edition in his prefatory remarks. He had stated, for instance, that his undertakings were “rudimentary” and nothing more than a start in the right direction of printing and editing Pliny (*rudimenta sunt et inchoata quidem rudimenta nostre recognitiones*).  

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317 See also the preface of the printed edition of Niccolò Perotti’s (1470) letter to Guarnieri. In *Deux Pièces* (Charlet, ed., 2003): 7. “But it was the art of printing that allowed for the development of the editions, commentaries...and polemics on Pliny the Elder. The first edition, ignoring the 1468 Verona phantom edition, on which, perhaps, the story depended, about the much earlier works of Guarino (1433), was printed in Venice by Johannes de Spira in 1469, before September 18.” (Mai c’est l’imprimerie qui va permettre le développement des éditions, des commentaires...et des polémiques sur Pline l’Ancien. La première édition, abstraction faite de l’édition fantôme de Vérone 1468, dont le mythe s’appuie peut-être sur les travaux bien antérieurs de Guarino (1433), a été imprimée à Venise chez Jean de Spire, en 1469 (avant le 18 septembre.) Regarding this “phantom” 1468 edition, it is apparently little more than a legend: la légende d’une édition de Pline à Vérone en 1468 résulte peut-être du croisement de deux souvenirs: le travail d’édition mené par Guarino, qui a laissé deux manuscrits (Ambr. D 531 inf et Munich CLM 11301, mais n’a pas abouti à une édition de Pline antérieure à celle de Bussi (Rome 1470), longtemps considérée à tort comme la princeps (voir plus loin). Quelqu’un qui ne connaissait pas l’édition de Venise 1469, mais avait entendu parler d’une édition mythique de Vérone 1468. This does little to explain the existence of a myth about a 1468 edition, but it does highlight the importance of the labor performed by Guarino and Petrarch and how that labor may have impacted the *editio princeps*.  

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Accordingly, Giorgio Merula (c.1430-1494), the humanist and classical scholar, composed a letter addressed to Bussi regarding his edition of Pliny. The original epistle is now in the Biblioteca Colombina, but was reprinted and readdressed to Antonio Chronico in 1474 with the title, *Giorgius Alexandrinus Antonio Chronico Sal[utem]*. The letter extends for several pages, but begins with Merula expressing dismay with the edition when he encountered it at a bookseller’s (*cum forte superioribus diebus apud bibliopolam: unum ex bis Plinii voluminibus offendissem*). Merula has paid close attention to Bussi’s prefatory remarks and is taken aback by the claim that the edition was the product of “learned diligence”, or even the advice of scholarly individuals (*ut corrector praefatur: erudita quadam diligentia: & doctorum consilio: impressa fuerunt*). Merula was disturbed by these claims (*illud praefatione imprimis motus*) and resolved to investigate them, detail by detail (*ita demum quamque rem quaesiturus*). Indeed, as soon as Merula began to read the text, he encountered a number of very serious errors (*in errores: & plurimos: & gravissimos incidi*). Merula believes that these errors are the result of too much diligence, not “learned” diligence, along with a certain recklessness in the attempt that Bussi had made with his editing philosophy (*quos cum nimia diligentia: tum temerario: & impudenti conatu: factos deprehendi*). Bussi was simply not critical enough of the thoughtless and excessive emendations made by “a certain grammarian”, namely, Theodorus of Gaza (*nam dum...

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318 Merula would himself edit the *editio princeps* of Plautus in 1472, printed in Venice by Johannes de Spira’s own brother, who took over the business after his death. (Plautus, Titus Maccius. 1472. *Comoediae*. Georgius Merula, ed. Venice: Vindelinus de Spira, for Johannes de Colonia.)

319 Library record: [https://opac.icolombina.es/opac/abnetcl.exe/O7004/ID040a10dd/NT2](https://opac.icolombina.es/opac/abnetcl.exe/O7004/ID040a10dd/NT2).


321 fol. 62r.
grammatici cuiusdam levi & improba emendatione contentus est). Moreover, Bussi relied too much on his own skill (suoque interim nimirum ingenio fidedit).\(^\text{322}\)

Merula’s observations are not original: the tension between recensio ope codicum and recensio ope ingenii sui was already well-known. However, given how early this episode is in the history of the European printing press, it is significant that Merula is complaining that Bussi and Theodorus of Gaza are too convinced of their own skill in Latin. When he refers to their ingenium, he means their knowledge of ancient literature and their expertise in “collating” manuscripts. As a result of this hubris, Bussi has really “perverted” the reading of Pliny (nunc veraque [sic]\(^\text{323}\) lectionem depravavit) and has transformed Pliny’s ideas into errors that are infantile and unworthy of such a great writer (nunc in falsos: aut pueriles & tanto scriptore indignos sensus...demutavit). These errors, taken together with the printer’s faults, have produced a jumbled text that can scarcely be understood (quae librariorum vitio confusa intelligi vix poterant).\(^\text{324}\) Merula therefore consulted with his scholarly friends about the situation, and they advised him to select a few of these errors to send along to Bussi, to be shown in turn to his own “corrector”.\(^\text{325}\) The main body of Merula’s epistle to Bussi is therefore composed of a number of these sample mistakes. Merula concludes his address to Bussi with a quasi-rhetorical question, which is quite pointed (fol. 62r):

\(^{\text{322}}\) fol. 62r.

\(^{\text{323}}\) There is no abbreviation mark in the printed text for the word veraque. However, the sentence only makes sense if the term is veramque and modifies lectionem. This is perhaps a mistake in printing.

\(^{\text{324}}\) fol. 62r.

\(^{\text{325}}\) Quam rem: cum amicis & viris non indoctis: ostendissem... hortati sunt: ut paucula: de multis: ad te mitterem: correctori ostendenda. (“Which situation, when I had pointed it out to friends and men who are not unlearned...they exhorted me to send a very few of the many (errors) to you, which need be shown to a corrector.”)
So that, evidently, it can be said, “Under what reason, or what authority, did these men order [Pliny’s text] to be printed, when its ancient, commonly accepted reading was not preserved?”

Merula sees Bussi and Theodorus as incredibly learned and truthful men (duos eruditos viros: & veritatis), who are champions of Greek and Latin both (tam graecae tam latinae assertores). He therefore can scarcely believe that they made so many shameful mistakes (vix enim credere possumus...in turpissima errata fuisse prolapsos). However, Merula’s primary issue with Bussi and Theodore involves their methodology, which is twofold: first, they assumed that there was even a need to authenticate Pliny’s text; second, in attempting to verify Pliny’s “20,000 facts”, they missed the mark entirely. There was no need for a process of verification of the content of Pliny’s text, but rather a systematic collation of the manuscripts. According to Merula, it is from the latter that one authenticates the version of the text set in print. In other words, if the goal is an authentic printed edition of the Historia Naturalis, the correct order of events is to first collate the manuscripts. Only when the editor is confident about the version of the text on which they are relying can they begin the process of verifying the correctness of the contents.

Merula now turns to the task of following the advice of his educated friends, and begins selecting errors to point out to Bussi. He notes that the book is open in front of him, and begins delineating the first mistakes that he sees. These corrections run the gamut, from tribal names to botanical nomenclature. Regarding the etymology of Viola, he says that Bussi and Theodore have incorrectly deduced the origin of the word from Greek literature (originem verbi a graecis litteris falso deduxere) and have printed the term “hyacithina”, where Pliny meant “ianthina”,
which means “violet flower”, from ἵον (violet) and ἄνθος (flower).\textsuperscript{326} It is worth verifying Merula’s quotation of Bussi’s edition. The passage in question (Book XXI.14) reads like this in the 1470 edition (p. 455):

Ex iis uero que sponte apricis & macris locis proueniunt: purpuree latiore folio statim ab radice carnosa exeunt soleque Greco nomine a ceteris discernunter: appellate. ita ut ab iis hyacinthina uestis.

Of those, however, which spring up in sunny, poor soils, the purple ones come up with a broader leaf, right from the fleshy root. And these alone are distinguished from the others, being called by a Greek name, so that hyacinthine cloth is so-called from them.

This is peculiar, since the actual printed edition does not lie: Bussi and Theodorus did use a Greek flower name: hyacinthos (Ὑάκινθος, “dark blue flower”). This is the wrong name for a Viola; the correct name is in fact Ianthina (Ἰάνθινα), “violet-colored flower”. Thus, Bussi has likely mistaken the smooth breathing in the manuscript for a rough breathing mark. However, Merula has also incorrectly transcribed the text as Bussi printed it, and has left off the letter ‘n’, getting h[y]acithina from hyacinthina.\textsuperscript{327} Such details matter in a situation where the editing and accuracy of a text is being critiqued. In fact, the mistake in the 1470 edition is likely not one of incorrect reasoning, or deduction, as Merula puts it. Rather, it may be a simple scribal error, or the wrong Roman type having been used when printing from the Greek in the manuscript.

Merula uses the perfect passive impressum est to make it clear that the fault lies in the printed

\textsuperscript{326} Merula 1471: 142. Merula also tries to prove his point by saying that Martial uses Ianthina: quod et Martialis in epigrammate sic confirmat dicens: Coccina famosae donas et ianthina moechae. It is unclear what the reference to Martial is supposed to indicate regarding the accuracy of botanical nomenclature. Merula explains the Greek etymology of the name Ianthina as a compound of both ἵον and ἄνθος, a violet flower, with a resulting meaning that implies pollution and defilement. The line of Martial confirms that scarlet and violet are shades that are suited to a prostitute. But this proves little more than that Martial used the term Ianthina.

\textsuperscript{327} In fact, I have reconstructed the letter ‘y’, since in Merula’s text, there is a gap between the ‘h’ and the ‘a’, with only the lightest shadow to indicate the missing letter. Based on the shape of that shadow, I surmise it is a ‘y’ rather than an ‘i’.
edition, according to which Pliny is supposed to have written, regarding the kinds of violets, that the name is derived from a different Greek word, with which Merula disagrees. The issue was not so easily resolved, however, as the passage in the Loeb edition\textsuperscript{328} has a slight, but important variation:

\begin{quote}
    ex his vero quae sponte apricis et macris locis proveniunt purpureae latiore folio statim ab radice carnoso\textsuperscript{329} exeunt, solaeque Graeco nomine a ceteris discernuntur, appellatae ia et ab his ianthina vestis.
\end{quote}

XIV. Of these, however, the purple ones, which spring up in sunny, poor soils, come up with a broader, fleshy leaf, straight from the root. They are also the only ones that are distinguished from the others by a Greek name, as they are called \textit{ia}, and it is from these that we get ianthine cloth.

Where Merula cites Bussi as using \textit{h[y]acithina}, the Loeb edition uses \textit{ianthina}, as he would have it. However, the term \textit{ia}, just after \textit{appellatae}, is taken as the plural of \textit{ion}, meaning that the name of the flower is \textit{Ion}, and the adjective describing the clothing is \textit{Ianthine}. This is not a minor difference, because neither Bussi nor Merula offers a version of the passage in which the actual name of the flower is stated. The addition of \textit{ia} in the Loeb means that the Sillig and Detlefsen editions on which it was based must have used it, and this is a likely outcome of the manuscript collation undertaken in the 19th century.\textsuperscript{330} In Bussi’s edition, the word has been

\textsuperscript{328} The editors of the Loeb edition did not undertake a new collation of the manuscripts, but relied on Sillig’s 1831 and Detlefsen’s 1904 editions.

\textsuperscript{329} Bussi has \textit{carnosa}. There is significant variance on this among manuscripts and printed editions.

\textsuperscript{330} Sillig’s edition (1831 3.401) reads: \textit{ex iis vero, quae sponte apricis et macris locis proveniunt, purpureae, latiore folio, statim ab radice carnoso exeunt, solaeque Graeco nomine a ceteris discernuntur, appellatae ia et ab his ianthina vestis}. The apparatus criticus states, “\textit{appellatae ia…Voss}.” This may be a reference to Leiden, Bibliothek der Rijksuniversiteit, Voss. Lat. Q.43, 12th c., from Orleans. This is one of the \textit{recentiores} derived from Manuscript E. See Chapter 2 for a discussion of the manuscripts of Pliny.
altered to *ita*, but it is not clear if this originates in the manuscript, or if it was an editorial choice. Moreover, in de Spira’s 1469 edition, this is how the passage appears (p. 424):

...ex eis vero quae sponte apricis et macris locis proveniunt purpureae latiore folio statim ab radice carnosa exequunt: quae sole graeco nomine a caeteris discernuntur appellatae hiacynthi et ab his hiacynthina vestis.

Here, the plant’s name is again provided, as *Hiacynthus*. While an incorrectly transcribed diacritical mark is easy to explain as scribal error, the *kappa* that would have to be transcribed as the ‘c’ is more of an issue. Whatever the explanation, de Spira’s manuscript follows the same sentence structure as does the Loeb edition, with the name following just after *appellatae*, which is also modifying the adjective, whether *Hiacynthina* (1469 de Spira) or *Ianthina* (Loeb). This means that in the manuscripts of Pliny, we can identify two, possibly three, Greek plant names in this passage: *Hiacynthus* and other, variant spellings (1469 de Spira); *Ion* (Loeb and its references); and, perhaps, *Ianthos* in the manuscript to which Merula had access. The conclusion is that there is in fact a nomenclature error in Bussi’s edition, but it is not clear how the error was made, especially because de Spira made the same basic mistake.

Merula continues his assault on Bussi’s nomenclatural reasoning process with a lengthy complaint about the plant name *Tormentum* (twisted).331 The word, argues Merula, makes no sense for a plant name and is clearly a misspelling of *tomentum* (stuffed). Therefore, whoever bade *Tormentum* to be fashioned in place of *Tomentum* should be charged with a crime (*accusandus est: qui pro tomento tormentum formari iussit*). Merula’s point is that in the immediate context of the passage in Pliny, it is clear that couch stuffing is being referred to,

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331 Pages 142-143.
rendering *tomentum* a far more logical reading. Much like his citation of Martial regarding the flower *lanthos*, he therefore includes passages from other ancient authors as proof that Bussi has reproduced an error in a manuscript. Merula draws attention to this fact, as well as to the more general danger of relying on codices, by quoting Pliny’s rough contemporaries and their uses of *tomentum* in very similar contexts. If these ancient authors used *tomentum* (stuffed) in similar ways as in the Pliny passage, then, argues Merula, this must be the term the authentic Plinian text used, and not *tormentum* (twisted). Again, the original sources need examination. The passage in Pliny is found in Book 19.1, when he is discussing a certain kind of flax:

Italia et Paelignis etiamnum linis honorem habet, sed fullonum tantum in usu; nullum est candidius lanae similis, sicut in culcitris praecipuam gloriam Cadurci optinent: Galliarum hoc et tomenta pariter inventum. Italiae quidem mos etiam nunc durat in appellatione stramenti.

Italy also values the Paelignian flax as well, but only in its employment by fullers—no flax is more brilliantly white or more closely resembles wool; and similarly, the flax grown at Cahors has a special reputation for mattresses: this use of it is an invention of the Gauls, as likewise is flock. As for Italy, the custom even now survives in the word used for bedding.

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332 The Pliny passage as Merula quotes it is: *Nullum est candidius lanae similis sicut in culcitris praecipuam gloriam cadurci optinent. Hoc ad tormenta pariter inventum.* (No [flax] is brighter white or more similar to wool, just as the Cadurci gain especial glory for their mattresses, this (and “tormenta” [flock] as well), being an invention of the Gauls).

333 He cites Varro (*On the Latin Language* V.167): “After they moved on to [using] mattresses: these were called *culcitra*, from *inculcando* (“to stuff or inculcate”), because they would hide either beech or stuffing [*tomentum*] or something else in them.” Also, Virgil, who said in criticism of Priapus that he was “more stretched out than *Tomentum* and *cythara,*” and Martial, *Epigram* XIV.160: “*Tomentum* is called swamp circus. A poor man buys it to make a linen blanket.” Finally, he cites Seneca’s *De Beata Vita* 25.2: “I shall be more wretched than none, if my yielding neck should acquiesce to a bunch of hay, or if I sleep upon “circus tomentum” overflowing through its patches of old linen.”

334 Taken from Loeb. Sillig (1831 3.286) reads *tomenta* as well.
This discussion is important because Merula’s main critique of Bussi is one that can be made of nearly every manuscript copy or printed edition of an ancient text. In fact, P2 (6805), one of Petrarch’s manuscripts of Pliny, reads at Book 19, …*Galliorum hoc ad tormenta pariter inventum.* 335 Similarly, P1 (6802) reads …*hoc ad tormenta*…336 This means that Bussi most likely erred in relying on the manuscripts available to him, not that he was a particularly poor editor. Moreover, if it is so patently obvious to someone who knows classical Latin that the correct word in this passage must be *tomentum* as opposed to *tormentum*, why did the scribes, and the editors of the first two printed editions, not catch this presumed error? Merula’s citation of other Roman writers does little to actually support his point. It does not matter that other Roman authors used the term *tomentum* to mean stuffing, not when his point is that Bussi’s edition is poorly edited. It is no more poorly edited than the 1469 edition, or more error-prone than the long manuscript tradition. Moreover, the use of *tormentum* instead of *tomentum* has been, over time, codified in botanical nomenclature in the genus *Tormentilla*. Nevertheless, Merula’s criticisms constitute an important step in the direction of daring to correct the author himself. Simmering just under the surface of Merula’s attack is the possibility that the use of *tormentum* originated either with Pliny or his own ancient sources. Merula refrains from overtly stating such a claim, but it is there, with Bussi taking the blame.

Merula was not, however, the only scholar to be disturbed by the 1470 edition of Pliny. Despite, or perhaps because of, the furious nature of Merula’s response to the 1470 Pliny, it is often regarded as mere invective. In contrast, Niccolò Perotti (1429-1480) wrote a lengthy epistle

335 fol. 284v

336 fol. 161v, left column.
to his colleague Guarnieri about the 1470 edition, in which he not only engaged in a sophisticated critique of it, but saw fit to address his ire not merely to his peers, but to Pope Paul II. In his letter, Perotti made what Monfasani argues was a proposal for state censorship in Rome; this censorship was focused not on morality or religion, but “quality control.” As such, Perotti’s response to this edition is considered to be the first example of press censorship. As the author of the 1468 *Rudimenta Grammatices*, one of the earliest Latin grammars, Perotti had ties with the University of Bologna, Popes Callixtus III and Nicholas V, and Emperor Frederick III. He was both a poet laureate and Archbishop, and was a philological ally of Lorenzo Valla (c. 1407-1457), the humanist scholar and priest, who had long-standing disputes with a number of other humanist scholars. In one macabre situation, the account of which is unverified but nevertheless demonstrates the real-life historical consequences for philological analysis, Perotti was allegedly involved in an assassination plot. Valla’s work assumed that the rhetorical techniques of the ancients could validly be used on sacred, Christian texts. He believed that one could subject the Bible to the same exegetical and linguistic forensic techniques as classical literature and even argued for the rejection of post-Classical Latin vocabulary and style. This stance earned him the wrath of Gianfrancesco Poggio Bracciolini (1380-1459), who saw the Bible and non-sacred texts as fundamentally different and in need of separate treatments. Poggio

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339 Monfasani 1988: 3.

340 Also published by Sweynheym and Pannartz.
wrote no less than five *Orationes in Laurentium Vallam* in 1452, in which he called Valla’s philological treatment of the Bible *dementia*, to which Valla responded with his *Antidota in Pogium*, a series of three invectives dating from 1452-53. One of Valla’s supporters was Niccolò Perotti, who was so impassioned about this dispute that he allegedly tried to have Poggio assassinated. The attempt failed and he was forced to apologize.\(^{341}\)

By the time the 1470 Sweynheym and Pannartz edition was printed, therefore, Perotti had long been problematically embroiled in disputes surrounding textual criticism. He had also begun living in Rome, where the competitive atmosphere likely contributed to his productiveness and to his increased interest in textual criticism and study of the Latin language.\(^{342}\) Perotti published his *Rudimenta Grammatices* in 1468,\(^{343}\) followed by exegeses of Martial and Statius. Thus, in 1470, he was well established in Rome and the uproar (started by Merula) over Bussi’s edition of Pliny would likely have been on his radar. Yet neither Merula nor Perotti was particularly erudite with respect to Pliny, or to natural history and botany. Their interest in the 1470 edition had more to do with editing and generalized textual criticism than with Pliny’s

\(^{341}\) This episode, dated to 1454, is often repeated in biographies of Poggio and Perotti both, with no evidence cited. However, the story appears to originate in a letter written by Poggio himself and addressed to Cardinal Bessarion, in which he complained about an ostensible plot against him by Perotti. See Walser, Ernst. 1914: 389-392, Dok. 94-97. *Poggius Florentinus: Leben und Werke*. Leipzig [etc.] B. G. Teubner. A letter of reconciliation between Poggio and Perotti can be found in Poggio’s *Opera* (ep. XII.7, *Opera* III.3 135-136).

\(^{342}\) Mercati 1925 V: 88. *Dall’emulazione in una città piena di litterati entusiasti e gelosi fra loro, lavorà molto, forse quanto mai in altri anni di sua vita, e attese specialmente agli studi prediletti della lingua latina.*

\(^{343}\) The third part of the *Rudimenta Grammatices* of Perotti is known as the *De Componendis Epistolis*, a treatise on the composition of letters. Given that Perotti made his argument to Pope Paul II about the 1470 edition via an epistle, this makes for a further transformation or epistemic data point, namely, transition in the 1490s from discourse in the form of letters to siloed, more individualistic presentations of the errors in Pliny, which invited no dialogue.
authentic text or readings of it. Mercati (1925) reprinted a selection from Perotti’s letter, and
remarked that one of Perotti’s first and primary complaints had to do with the edition’s prefatory
materials. Where de Spira had been content with the inclusion of Suetonius’ “Life of Pliny”,
Bussi had included several other texts, such as epistles from Pliny the Younger to Baebius
Macer and to Tacitus (Epistles 3.5 and 6.16, respectively, in both of which he discusses his
uncle), an apologia by Tertullian, and a “Life” by Eusebius Cesariensis. These additions were,
for Perotti, disgraceful enough on their own to dissuade any praise he might have aimed at it
(quamquam illud quoque laudare vix possum). It is not entirely clear why Perotti is so
disturbed by the inclusion of such prefatory materials, especially since he does not bother to state
what they are or how they qualify as indigna. His complaint seems to consist entirely in the mere
fact that they are not ancient (quīs autem eōrum qui in praesentia vivunt tam temerarius sit, ut
ausit scripta sua etiam cum infimis veterum conferre?). He makes only one exception, the
epistle of Campanus, which he deems suitably eloquent and serious, perhaps even superior in
quality to the “Life of Pliny” (excepta Campani epistola, quae et gravitate et facundia et
brevitate digna visa est quae Plutarchi vitis praeponeretur). Perotti is referring to Bishop
Johannes Antonius Campanus (Giovanni Antonio Campani, 1429-1477), a protégé of Cardinal
Bessarion and a humanist scholar and writer at the court of Pope Pius II. Perotti’s take on Pliny

344 Mercati 1925 V: 89n1.

345 Incorrectly printed in Bussi as G. Plynius Marco suo Salutem, instead of G. Plinius Macro
suo Salutem.

346 Mercati 1925 V: 89n1.

347 Mercati 1925 V: 90n2. See also D. Reichling, Appendices ad Hainii-Copingeri Rep. bibliogr.,
Usci Circa il 1470” (cf. Copinger, Supplement I, 388 al n. 13125. Sull’amicizia che strinse il
Perotti e il Campano, v. sopra, p. 69 sg.”)
is therefore similar to de Spira’s decision to print the *Historia Naturalis* and the Venetian authorities’ effusive approval of this decision: Pliny is an ancient Roman writer, much read and copied, and he deserves not only to be printed, but to be printed on his own. The addition of other writers and works, no matter how brief, and despite the fact that they are relegated to the preface, is essentially a dilution of Pliny’s import.

In a discussion about textual criticism and edition, it is crucial to note, however, that the selection of this brief passage from Perotti’s letter is evidence of the biases and interests of Mercati, the editor, just as much as Perotti’s. While it is true that Perotti was troubled by the prefatory materials of the 1470 Pliny, he had many other complaints, which Mercati’s 1925 printing leaves out. In 2003, Perotti’s letter was reproduced in full, providing to scholars a more accurate picture of the scope of his issues with the 1470 edition.³⁴⁸ Perotti begins by expressing the high hopes he had had for the new art of printing, with a quote from Campanus: *Imprimit ille die quantum non scribitur anno* (“He printed in a day more than could be written in a year”).³⁴⁹ Perotti had evidently assumed from this statement that in a very brief period of time, a glut of books would be produced, so great that in the future even those who are poor (*inops*) and


³⁴⁹ It is unclear to whom Campanus is referring. The full quote from Perotti reads simply *Quod uno verso Campanus noster Aprutinus pontifex elegantissime scripsit.*
indigent (egenus) could obtain any text (opus) they could possibly desire.\textsuperscript{350} Thus, the very first complaint lodged by Perotti is not specific to the 1470 edition of Pliny. Rather, it is a broader issue with printing in general, a new technology that was supposed to fulfill the promise of making texts readily available to anyone who wished to read them. Implicit in this expectation is the assumption that the only books anyone would dream of printing are precisely those that Perotti deems worthy and beneficial to the destitute. Yet this is not what happened and Perotti laments the kinds of reading materials that the poor and uneducated prefer. He had been under the impression that the printing press would render such unsuitable materials obsolete (Charlet: 69; Perotti: 1):\textsuperscript{351}

\begin{quote}
Hinc fore existimabam ut vigerent in dies magis ingenia hominum et florent studia litterarum omnesque ad capessendas praecellas artes tanta librorum commoditate allicerentur.\textsuperscript{352}

For this reason, I thought that mankind’s brilliance would become more vigorous every day and that the study of literature would flourish and everyone, thanks to such a massive upgrade in the availability of books, would be won over to the pursuit of illustrious arts.
\end{quote}

On the contrary, printers indulged in whatever suited their fancy, for the benefit of a mere caprice of the mind (pro libidine animi sui quaecunque velit imprimere). The result, according to Perotti, was that works that deserved to be lost and forgotten (quae oblitterari potius ac deleri ex omnibus libris deberent) were instead treated as high-quality (omissis saepenumero quae optima sunt). In addition, if by chance the works of a worthy author were printed, they were so corrupted

\textsuperscript{350} Charlet 2003: 69. \textit{Ex qua re tantam brevi tempore librorum copiam futuram sperabam ut nullum superfuturum esset opus quod vel ab inope atque egeno homine posset amplius desyderari.}

\textsuperscript{351} The letter has been divided into numbered sections by the editors, and these are provided in tandem with the page numbers of the monograph, to make clear where in the epistle Perotti makes his points.

\textsuperscript{352} Charlet 2003: 69.
that it would be better not to have printed them in the first place, since they can mislead their readers (*id ita pervertant atque corrupnant ut melius sit his libris carere quam in exemplaria mille transcriptos per omnes orbis provintias mittere*).\(^{353}\) Perotti therefore is worried about the deleterious effects of the art of printing on those who are either impressionable or already prone to seek out reading materials that will corrupt the mind. He does not see these effects as stemming from the ignorance of the printers, but from their negligence (*huius autem rei causa est non tam inscitia eorum qui imprimunt quam negligentia*).\(^{354}\) This is the reason for his proposal, and the reason for his letter. Perotti wants Guarnieri to encourage his patron, the Cardinal M. Barbus, to oversee the undertakings of printers. Moreover, Perotti has a very specific idea in mind. He wants a position to be established under the authority of the Pope himself, the holder of which will be responsible for upholding for printers a law stating which books can be printed. This individual will also inspect every printing form before being printed, and ensure that the correctors and emenders do not go rogue (Charlet: 70; Perotti: 6):

…qui et imprimendorum librorum legem impressoribus praescribat et adhibeat aliquem mediocre peritum qui singulas quasque tabellas ante impressionem examinet et emendet, summo praeterea studio curet ne primi isti correctores augurari aliquid temere ausint, sed modum quem paulo ante diximus servent.

This individual would prescribe to the printers a law concerning the printing of books, and would oversee anyone who is even slightly at a loss. He would examine and edit each and every tray before printing, and in particular, he would see to it with the utmost dedication that those early correctors do not dare to rashly conjecture something, but that they provide the restraint we spoke of a little while ago.

Perotti hopes that by instituting such measures, “we” will have not only a plethora of books to read, but books that are “whole”, or “intact” (*hoc si fiet, et multos habelimus libros et*  

\(^{353}\) Charlet 2003: 69; Perotti: 2.

\(^{354}\) Charlet 2003: 69; Perotti: 3.
These remarks conclude the first six paragraphs of the letter. Beginning in the seventh paragraph, Perotti turns his attention to the 1470 Sweynheym & Pannartz edition of Pliny, which he sees as a perfect example of the license with which editors have been approaching these texts. Corrupting Pliny’s own preface with the addition of extra material is unconscionable in part because the preface is the easiest part of the text to get right (pars facillima). Thus, he asks, if there are so many identifiable errors in the printed version of the preface, what can he expect from the rest of the text, which is all the more difficult to edit? Perotti suggests that he and Guarnieri take a closer look at this preface, and states that they will search for the errors within it (errores rimabimur) and will explain the preface itself (prohoemium ipsam exponemus) with two aims. The first goal is that, once Pliny’s stance is understood, the errors can more easily be debunked (ut cognita autoris [sic] sententia errores ipsi facilius deprehendi possint). Second, through their work and diligence, those who are studiously inclined can understand certain passages which either no one, or at least very, very few people, have understand for some 600 years (intelligent studiosi loca quaedam quae sexcentis iam annis vel nemo vel quam paucissimi intellexere). Thus, he claims that it has been a very long time since anyone has been truly knowledgeable about Pliny’s work. This is not just a bold statement about Perotti’s own ability to engage in textual criticism. He was writing circa

355 Charlet 2003: 70.

356 Quod si prohoemio solo tot errores deprehendemus, quid in reliquo opere poterimus sperare? (Charlet 2003: 71; Perotti: 7). Despite this criticism, Perotti acknowledges the efforts of Theodore de Gaza, and states that had his lead been followed, the work as a whole, including the preface, would be intact (Quem si pari modo secuti in omnibus fuissent, certe non modo prohoemium, sed totum opus integrum haberemus).
Six hundred years prior was circa 870 CE, making this a possible reference to a Carolingian-era analysis, emendation, or collation of Pliny’s text.\textsuperscript{357}

Having laid out his intentions, Perotti begins his analysis of the errors in the 1470 edition. First is the fact that the editors have changed the addressee from Vespasian, as it is in all the manuscripts (\textit{habent autem codices omnes ‘Vespasiano’}), to Domitian. Pliny calls his addressee \textit{Iucundissime Imperator} (Most Agreeable Emperor) and then says, \textit{Sit enim haec tui praefatio verissima, dum maximo [sic] consenescit in patre} (May this appellation, a very true one, be yours, while that of “Maximus” grows old with your father). Perotti reasons that, since Vespasian’s father was not an emperor, the correct addressee must have been Domitian. Just in case there is any doubt, Perotti anticipates a counterexample. “Why not Titus instead, with whom all of Pliny’s words align marvelously?”\textsuperscript{358} In response, Perotti cites the following lines from Pliny’s preface (Charlet 2003: 71; Perotti: 8):

\begin{quote}
Ut sciant omnes quam ex aequo tecum vivat imperium triumphale et censorium ius, exeeas que consul ac tribunitiae potestatis particeps et, quod iis nobilius fecisti, dum illud patri pariter et equestri ordini praestas, praefectus praetorii eius.\textsuperscript{359}
\end{quote}

\textsuperscript{357} Manuscript B is the oldest known extant ms. of Pliny, dating to the first half of the 9th century.\textsuperscript{358} \textit{Cur non ad Titum potius, in quo omnia Plinii verba mirifice quadrantur?}\textsuperscript{359} The text as Perotti has quoted it does not quite correspond to the 1470 edition: \textit{ut in quedam acta exeat. Sciantque omnes quam ex equo tecum vivat Imperium. Triumphalis et Censorius tu sextumque Consul ac Tribunicie potestatis particeps. Et quod iis nobilius fecisti dum illud patri pariter et Equestri ordini praestas Prefectus Pretorii eius.} The text in the Loeb is also slightly different: \textit{ut in quaedam acta exeat, sciantque omnes quam ex aequo tecum vivat imperium, triumphalis et censorius tu sexiesque consul ac tribuniciae potestatis particeps et (quod his nobilius fecisti dum illud patri pariter et equestri ordini praestas) praefectus praetorii eius. (“That it [Pliny’s impudence] may result in something getting done, and everyone may know on what equal terms the empire lives with you—you with a triumph to your name and censorial rank, six times consul, colleague in tribune’s authority, and (a service that you have made more illustrious than these in rendering it equally to your father and to the equestrian order) commander of his bodyguard.”) (trans. Loeb).}
That everyone may know how the empire lives in an equal manner with you, who have a triumph and the rank of Censor. And may you depart as Consul and a part of the Tribune’s authority, and Commander of his Praetorian guard (which you have made more illustrious than these others when you offer it equally to your father and to the equestrian order).

These lines, says Perotti, cannot possibly refer to Domitian. Moreover, Suetonius himself thinks that Titus is the addressee.\textsuperscript{360} This mistake is, therefore, not just a mistake. It is utterly deplorable, and prompts Perotti to lapse into a series of woeful exclamations about the nature of the editing of the text. He asks whether his correspondent understands that what has been done to Pliny’s text is condemnable, because of carelessness and negligence, but also because the editor dared to change, for no reason, and with no authority, the prefatory materials and the main text both.\textsuperscript{361} He compares the “correcting” of books (\textit{librorum correctionem dicemus}) in such a manner to depravity and corruption (\textit{depravationem ac corruptionem}), calls the sheer number of books produced a shared calamity (\textit{communem calamitatem}), and declares the art of printing an injury to and even the death of literature (\textit{non est hoc excitari litteras et florere, sed potius})

\textsuperscript{360} Charlet 2003: 71-2.

\textsuperscript{361} Charlet 2003: 72; Perotti: 11. (\textit{Vides igitur, mi Francisce, quam damnanda sit sive incuria, sive negligentia huius hominis qui principium ipsum tanti operis...sine ratione, sine autoritate aliqua mutare ausus sit, et ita mutare ut planè perverterit}).
Thus far, Perotti is demonstrating his acquaintance with Lorenzo Valla, and his textual criticism is clearly modeled after Valla’s.\textsuperscript{362}

Thus, in paragraph 24, Perotti criticizes the editor’s erudition, in reference to this sentence from Pliny: \textit{Nec quicquam mutavit in te fortunae amplitudo nisi ut prodesse tantundem posses ut velles.}\textsuperscript{363} The editor (corrector) of the 1470 edition changed \textit{ut velles} in this sentence to \textit{et velles}, which is both a corruption and what is to be expected from uneducated people (\textit{quemadmodum vulgus indoctorum opinatur}).\textsuperscript{364} Similarly, in paragraph 44, Perotti notes a change from \textit{casus mirabiles}, which all of the ancient manuscripts (\textit{antiqui codices}) have, to \textit{casus miserabiles}. Perotti cannot understand this change (\textit{qua ratione id fecerit nescio}), because the phrase \textit{non alia iucunda dictu} (nothing else that is pleasing to speak of) follows right after,\textsuperscript{365}

\textsuperscript{362} In paragraph 21, for example, he calls Guarnieri’s attention to a particular phrase, which, he argues, is too vulgar to be Pliny (Charlet 2003: 75): \textit{Sed animadverte obsecro quomodo corrector noster corrumpat hunc locum. Ita enim scribit: “Triumphalis et censorius tu”. Multa sunt hic planè ridicula. Primo non cohaeret oratio; deinde nullum est verbum cum quo haec vocabula construantur. Praeterea, quis adeo rudis et barbarus ita loqueretur “triumphalis et censorius tu”? (“But notice, I pray, how our corrector corrupts this passage. For he writes, ‘You, triumphant and censorial.’ This is ridiculous for several reasons. First is that the speech is not harmonious; and then, there is no word with which these terms align. Moreover, who is so uncoiled and savage as to say, ‘You, triumphant and censorial’?”)\textsuperscript{363} This appeal to the aesthetic value of the phrase is strongly reminiscent of the reasoning processes employed by Valla in his analysis of the Donation of Constantine. In his 1440 \textit{De falso Credita et Ementita Constantini Donatione}, Valla considers the possibility that the Roman pontiffs in fact knew that the donation was a forgery, but said nothing, or perhaps even forged it themselves, because it was in their interest to do so. Valla’s arguments against the Donation fall under seven categories, or steps, the fourth of which is the fact that the Donation is full of contradictions, impossibilities, stupidities, barbarisms, and absurdities. For instance, he calls the phrase \textit{nostra est terrena imperialis potentia} a barbarism, because it personifies “the empire”, giving it a mind with which to give grants and power, \textit{quasi imperium habeat animum concedendi et potestatem}. Valla also complains that the phrase “gloriously exalted” is inflated with puffed-up pride (\textit{tumida superbia inflatum est}).\textsuperscript{364}

\textsuperscript{363} Charlet 2003: 77. (“Nor has fortune’s grandeur made any change in you, save in enabling you to bestow all the benefit you desire.”)

\textsuperscript{364} Charlet 2003: 77; Perotti: 24.
and *casus miserabiles* do not bring joy (*iucunditas*), but rather grief (*maestitia*). Thus, in the case of *et velles*, Perotti is insinuating that the editor does not understand classical Latin grammar sufficiently, whereas in the case of *casus miserabiles*, he takes the significance of the passage into account and argues that the change from *casus mirabiles* does not make sense.

The epistle goes on for another thirty paragraphs in this fashion before Perotti finally concludes, claiming to have found some twenty-two errors made by the editors. He declares that he does not bear true ill will against them, but he simply cannot endure seeing an author such as Pliny subjected to such mangling and low-brow meanness, “so as to not only not entice men to read him, but even to alienate them, as though from a stomach ailment.” Moreover, Perotti sees the Latin language itself as at risk of disappearing very soon as a result of such printed texts (*videbam in tanta talium librorum multiplicatione Latinam linguam, nisi provideretur...brevi tempore perituram*). This danger has been averted precisely because of his own efforts in identifying the errors in the 1470 Pliny, for which the editors should be grateful (*sed agant potius gratias*). Perotti both minimizes his own tract, calling it a “short, little work” (*breve opusculum*), and emphasizes its import for future editing of Pliny, stating that he has shown them the correct path to take (*viam eis quam tenere posthac debeant veluti intento digito demonstravimus*). He has demonstrated how to fix the many errors in the text, which are

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365 Charlet 2003: 83; Perotti: 44.

366 Charlet 2003: 93; Perotti: 71. (*...et una cum expositione Plyniani proheoemii duos et viginti errores correctoris satis insignes ad te misi...* “...and together with my exposition of the proem of Pliny, I have sent to you some twenty-two errors [made by] the corrector, which are quite conspicuous...”)

367 Charlet 2003: 93; Perotti: 71. *tam egregium autorem pati non poteram tam lacerum ac sordidatum circunferri ut non modo non alliceret homines ad legendum, sed potius fastidio quodam et quasi stomacho abalienaret.*
manifold, and which are both the doing of the editors and the result of simple oversight (*seque ad reliquos errores quos toto libro pene infinitos vel dimiserunt vel fecerunt emendandos accingant*). Thus, Perotti sees the task set for himself and his colleague Guarnieri, and his responsibility as a reader, as twofold. He considers it paramount to point out to the editors the error of their ways. They err on a macroscopic, broadly methodological level with regard to the inclusion of extra prefatory material, and on a minuscule level, with such vocabulary changes as *mirabilis* to *miserabilis*. But the disservice done to Pliny by his editors is only one example of a worrying trend in the emerging technology of printing. By setting Bussi and Theodorus of Garza right in their edition, Perotti means also to highlight similar dangers and corruptions in other printed texts. Should a position be instituted to oversee the editing of printed materials, one that reports back to the Pope himself, Perotti believes that such textual “murder” can be avoided in the future. In terms of these two aspects of Perotti’s goal, of correcting GiannAndrea Bussi and establishing a Church-funded position of printing overseer, he is keeping to the tradition of criticizing those who have contributed to the corruption of classical texts, and by inference, the Latin language itself. There is, however, one detail in Perotti’s closing remarks that indicates the direction in which the editing of Pliny would soon turn. When he says that the editors (*correctores*) either pardoned or created the errors in Pliny (*vel dimiserunt vel fecerunt*), he is anticipating the criticism of Pliny himself that would, within twenty years, define the discourse surrounding the *Historia Naturalis* among the Italian humanists. Just as Merula hinted at a textual error in Pliny (*tormentum*), so too can we discern in Perotti a latent concern that at least some of the errors in the printed editions of Pliny are not the fault of the printers and editors.

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368 Charlet 2003: 93; Perotti: 71.
3.2 The Emenders: Leoniceno, Collenuccio, and Barbaro

Merula and Perotti were engaged in a critique of the early attempts to preserve Pliny’s text in printed editions. Their concerns were first and foremost about the technical issues with the new technology of the printing press, and secondarily with the intellectual effects of it, with the status of the editors, who were neither Classical nor humanist scholars. They were not primarily concerned with Pliny himself as an authority, or with verifying their own claims regarding the manuscript tradition. Their reactions to the 1470 edition of Pliny were therefore seen as hyperbolic, as expressions of unjustified disappointment and misplaced rage. They had simply expected far too much of the technology of printing. Nevertheless, there is in both scholars a subtext, in which the kernel of authoritative criticism aimed at Pliny rather than his editors can be discerned. After them, there was a critical-scholarly gap of nearly twenty years until the beginning of the last decade of the century, following the printing of several more editions of Pliny and the establishment of printing as a respectable technology with benefits that outweighed the negatives over which Perotti had obsessed.\textsuperscript{369} At that point, three Italian humanist scholars, Niccolò Leoniceno (1428-1524), Ermolao Barbaro (1454-1493), and Pandulfo Collenuccio (1444-1504), revisited the issue, this time focusing on Pliny himself, rather than his printers. This resulted in a definitive, Venetian edition of Pliny, edited by Ermolao Barbaro and printed for him posthumously by Bernardinus Benalius in 1497-98. This last edition is of particular importance, because Barbaro had published his \textit{Castigationes Plinianae} in 1493, the year of his death. An

\textsuperscript{369} The other editions of Pliny that were printed in the intervening years include a 1472 Venetian edition, printed by Nicolas Jenson and edited by Joannes Andreeae, Bishop of Aleria (GiannAndrea Bussi himself, who evidently took some of Perotti’s criticisms to heart); a 1479 Treviso edition, printed by Michael Manzolus and edited by Phillipus Beroaldus. Beroaldus also edited editions printed in Parma by Andreas Portilia, 8 July 1481, in Venice by Rinaldo da Nimega in 1483, and in Venice by Thomas de Blavis, de Alexandria, 3 Nov. 1491.
edition of Pliny edited by Barbaro himself was therefore of interest to anyone familiar with the
debate surrounding Pliny as an authority: Barbaro came to be seen as the authority on Pliny. The
fact that so many editions of Pliny were printed in the last few decades of the 15th century also
meant that by the time Leoniceno, Collenuccio, and Barbaro revived Merula’s and Perotti’s
discourse about quality control, collation techniques, and editing, there were now several printed
variants of Pliny’s text, not just two. Thus, the original goal of preserving the text of the Historia
Naturalis, which de Spira had mentioned in his colophon, was itself now destabilized. Which of
the many printed editions was most authentic? In order to begin to answer this question, the
humanists had to expand the horizons of their critique from the editors of Pliny and from the
skills of the individuals in the printing shops, to Pliny himself.

In 1492, Niccolò Leoniceno (1428-1524) published a tract entitled De Plinii et Aliorum in Medicina Erroribus. This work was in response to the classical scholar and poet Angelo (Agnolo) Ambrogini (Politian, 1454-1494), with whom he had been engaged in an epistolary debate regarding Pliny and the errors contained within his text. The substance of their debate was essentially the following: Leoniceno believed that Pliny mistook the Greek word κίσθος (rock-rose) for κισσός (ivy), and had at some point written about this to Politian. In a 1491 letter in response to Leoniceno, Politian defended Pliny. He did not entirely agree with Leoniceno’s


371 The transliteration of the Greek tends to switch back and forth between cissos/ciston and kissos/kisthon in the sources. Outside of direct quotations, I will use cissos and cisthon, which correspond to a larger number of Latin sources.

analysis of Pliny’s treatment of the Greek names, but in his letter, he granted that such mistakes, if made, could “render a doctor more dangerous than a disease.” The printed edition of Leoniceno’s tract, which is a longer version of his own original reply to Politian, therefore begins with the text of Politian’s 1491 letter, which needs examination in order to understand the substance of Leoniceno’s critique of Pliny. Politian tries to reconcile this particular mistake, which arises from one specific passage in Pliny, with the remainder of the *Historia Naturalis*. He admires and respects Pliny, but he also respects the work that Leoniceno has done in critiquing him. He is therefore torn between pleasure at the publication of Pliny’s work and grief at the result (*nescio plus ne mihi voluptatis an doloris attulerit*). Politian is not only critical of the printers, but of Pliny himself. He uses the terminology of medicine, referring to the subject matter as “the very lifeblood and health of men” (*hominum vita salusque*) and aligning his own frustration with physical pain (*dolor*) as opposed to physical pleasure (*voluptas*). He also complains, evoking Perotti’s concerns about the deleterious effects of mass book printings, that “ignorance” has been allowed to advance to the point where, unaware of what they are ingesting, people die because they pay for a remedy that turns out to be a lethal poison. Given this state of affairs, he asks rhetorically, “who does not realize that there is greater danger from the doctor than from the disease, since one sickness is cured for another, and some remedies are produced for others?”

373 Leoniceno 1492: 1.

374 *Quod in se grassari tam diu impune tristem hanc ignorantiam patias, atque ab his interdum vite spem precio emat: unde mors certissima proficiscatur.*

Politian continues to use the terminology of pain to refer to his own frustrations (*indolui rursus generis humani vicem*). However, the object of his pain switches from the unforeseen effects of printed editions of Pliny to a broader ignorance of herbal lore. The distinction is subtle, but definite. Given the main topic of this exchange of letters (whether or not Pliny mistook one Greek name for another), Politian seems at first glance to be placing the blame for this ignorance on Pliny, but he is not. He makes it clear that the ignorance in question is not Pliny’s, but rather that of humanity as a whole. If individuals were better learned in herbal lore, they would not have to rely on Pliny and would not themselves make such mistakes. Politian then goes through the passages where Pliny discusses both *cisthon* (rock-rose) and *hedera*, at Book 16.145 and Book 24.81 of the *Historia Naturalis*. He concludes that in Book 16, there is no evidence that Pliny “placed kisthon among the ivies” (*satis igitur ut arbitror apparent nihil esse quod nos fateri cogat Plin. lib. Xvi. kisthon inter hederas retulisse*). In Book 24, the passage is simply unclear, because Pliny refers to a *vocabulum* in the Latin language that is very similar to *cisthon*, but does not specify the word (*sed quod eam greci vicino sic.n.inquit vocabulo appellent*). This is where Leoniceno’s confusion has arisen (*ubi confusionis occasio nascebatur*). At 24.81, Pliny begins by saying that the Greeks call the herb in question *cisthon*:

> Graeci vicino vocabulo cisthon appellant fruticem maiorem thymo, foliis ocimi. duo eius genera: flos masculo rosaceus, feminae albus.

> The Greeks give the name *cisthos*, which is very like our word, to a shrub larger than thyme, with leaves like *ocimum* (basil). There are two kinds of it; the male flower is rose-colored and the female flower is white.

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376 This is a clever appropriation of Pliny’s own criticism of the ignorance of Romans with regard to medical skill and lore: they are susceptible to the manipulation of quack doctors because they have not bothered to learn the art of medicine. See Chapter 1 for a discussion of this.
The issue with this passage is that the phrase *vicino vocabulo* lacks a referent: what word is indicated by the term *vocabulum*? This is what Politian is referring to in his conclusion. Pliny does not say what Latin name goes with the plant that *cisthon* resembles. In the next section, Pliny implies that there is a difference between the two Greek words, saying that the plant called *Cissos erythranos* is like *hedera*, or ivy (*HN* 24.82):

> Cissos erythranos ab iisdem appellatur similis hederae.

This is all complicated by the fact that at *HN* 24.81, Pliny mentions another plant that grows underneath *cisthon* and is therefore called *hypocisthis*, whereas he names in 24.82 a kind of ivy that grows close the ground as *chamaecissos* (*item chamaecisson appellant hederam non attollentem se a terra*). In Book 16, Pliny says that there are two kinds of *hedera*, masculine and feminine, and that both of these have three species each: white, black, and helix (spiraling) (*HN* 16.145):

> Duo genera prima ut reliquarum, mas atque femina. maior traditur mas et corpore et folio, duriore etiam ac pinguiore ut et flore ad purpuram accedente; utriusque autem similis est rosae silvestri, nisi quod caret odore. species horum generum tres; est enim candida aut nigra hedera, tertiaque vocatur helix.

There are two main kinds of ivy, male and female, as with the rest of the plants. The male is said to be larger in both overall size and leaf, which are also harder and thicker, just as the flower is approaching the color purple in color. But (the flower) of both kinds is similar to the wild rose, except that it has no scent. Each of these kinds has three species, for ivy is white or black, and a third species is called helix.

Of this, Politian says that Pliny takes pains to distinguish *hedera* from *cisthon* by referring to the colors, form, and medicinal uses of each variety of ivy (*maximo quando/quoniam cisthos ab hedera [Plinius?] et figura et colore et viribus differat*). He now summarizes Leoniceno’s point,
that this is all much more remarkable in Pliny than in Avicenna,\textsuperscript{377} since the former knew Greek and therefore ought to have distinguished \textit{cisthon} from \textit{cissos} (hedera).\textsuperscript{378} Leoniceno apparently thinks that Pliny did not actually make this distinction (\textit{argumentum offers quemobrem alterum ab altera non separat}). Politian therefore explains that this is not true, and cites the above passages as proof.\textsuperscript{379} After this, Politian declares that Pliny says that he has mentioned \textit{cisthon} among the kinds of ivy (\textit{postremo quod est cisthi huius fecisse inter hederas mentionem se dicat}). Yet the only place in the \textit{Historia Naturalis} where this is possible is in Book 24, where he refers to the imprecise \textit{vocabulum}.

Politian calls the assumption that \textit{cisthon} is what is meant by the name \textit{hedera} a “simple conjecture” (\textit{facilis coniectura est Cisthon ab eo hedere nomine}).

\begin{quote}
\textsuperscript{377} Politian is referring to Avicenna (Ibn Sina, the Persian polymath) as another authority in medicine. Avicenna’s \textit{Canon of Medicine}, circa 1025 CE, was highly influential and the Latin translation was included in the \textit{studia medicina} curriculum in France and Italy. Politian had begun his letter to Leoniceno by referring to Avicenna: \textit{Angelus Politanus Nicolao Leoniceno salutem dicet Dictata illa tua Nicolae quibus Avicenne refellis inscitiam: docesque medicos iunioris quanta in caligine rerum versens}. (Politian sends his greetings to Niccolò Leoniceno: with respect to those words of yours, with which you challenge the ignorance of Nicholas Avicenna, and regarding how many things you, who are occupied with the darkness of affairs, teach younger doctors). It is unclear exactly how Avicenna fits into this particular debate, since he does not mention either \textit{cissos} or \textit{cisthon} in his work. It is likely in response to something said in Leoniceno’s original letter to Politian, since later in the tract, Leoniceno defends his critical stance by saying that he takes issue with certain \textit{barbari}, especially Avicenna, who have misrepresented the features and benefits of \textit{hedera}. See below. French (1986: 254) thinks that Leoniceno lumped Avicenna in with every other non-Greek writer. “For Leoniceno, they were all Latin interpreters.”

\textsuperscript{378} \textit{addisque mirandum de Plinio magis quam de Avicenna, quem de Grece lingue peritus secernere a Cisso hoc est ab hedera Cisthon debuerat}.

\textsuperscript{379} \textit{quod in libro naturalis historie xvi hederam dividat in marem et feminam. Floresque utruiusque similem dicat esse rose silvestri. Tunc idem libro iii et xx cisthon quoque illam sub qua nascitur hypocisthis in marem dividat et feminam marique rosaceum. Semine album tribuat florem}.

\textsuperscript{380} \textit{Quocirca sic videris posse colligere. Cum Plin. libro iii et vigesimo mentionem se de cistho inter hederas fecisse doceat, cuius tamen vocabulum nusquam superius inter hederas citetur}. (Pol.)
comprehensam). Politian’s reaction to Leoniceno’s claim that Pliny mistook *cisthon* and *cissos* is that the supposedly incriminating passage in Book 24 is in fact too imprecise to be taken either way, and that the other passages in the *Historia Naturalis* in fact support the claim that Pliny was well aware of the difference between the two plants.

Leoniceno’s own tract begins with the claim that while Politian is clearly educated in certain areas, including literature, philosophy, and oratory, he does not know anything about medicine or plants. Leoniceno says that he does in fact think that Pliny has been deceived with regard to the names of the Greek plants and how they relate to the Latin plant names (fol. 3v):

> Cum igitur ego ita sentirem Plinium non minus quam ceteros in hedere descriptione alterius plante que apud grecos cisthos appellatur nominis vicinitate deceptum.

Therefore, when I felt that Pliny, no less than others, in his description of *hedera*, was deceived by the similarity of the name of another plant that is called *cisthon* among the Greeks…

Leoniceno acknowledges Politian’s conclusion and the fact that he does not want Leoniceno to focus so much attention on the perceived error (*quod autem fortius atque evidentius hunc a me errorem indicari oportuisse censes*). Yet, not wanting to back down, Leoniceno redirects Politian to the main point, which is that Pliny is fallible and it was not only this one particular error that led him to this conclusion (*scito non fuisse tunc animi mei propositum Plinii auctoritatem pessundare*). In fact, he protests, he never said that Pliny was like Avicenna (and others) in the sense of making errors (*quem tamen non dixi una cum Avicenna ac reliquis errasse*). Leoniceno makes a crucial distinction, between simply “making a mistake” (*deviare*) and wandering far off track, which he calls “aberring” (*aberrare*). He is in fact much fairer in his critique of Pliny than

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381 This is a fairly lengthy introduction, and takes up the entire first page and a half.
others, whom he claims were “aberrant” and not simply mistaken. Nevertheless, he insists that there are in fact many errors in Pliny and that if he wanted to, he could fill up an entire volume with them. Instead, he has chosen to focus on just a few (pauca tamen multis hoc in loco censui apperienda), so that Politian will understand why he is convinced that Pliny did incorrectly describe hedera, in addition to other, medicinal plants (ut existimarem Plinium ita in hedere descriptione quemadmodum in multis aliis ad medicinam pertinentibus aberrasse). Leoniceno insists that he has been led to question Pliny’s authority by “very sure arguments” (certissimis rationibus), not out of arrogance (non temerario iudicio). In fact, one of Leoniceno’s first arguments (rationes) would later be repeated by generations of classical scholars, namely, that Pliny was unoriginal and his “discoveries and findings” were not his own (non satis illi comperta atque explorata fuisse crediderim). It follows from this that if Pliny was simply reiterating what he had read in other authors, then he was more prone to make mistakes and “represent different things for the same and vice versa” (sepius diversa pro eisdem atque eadem pro diversis retulisse videatur).

The problem for 15th-century scholars who undertake to analyze Pliny, therefore, is that, because he repeated so much that he had learned from others, if a “mistake” is identified or suspected in his text, one cannot simply denounce Pliny. It is also essential to compare what Pliny has repeated to other ancient authors, to see if there is any agreement between them, a difficult task when dealing with ancient sources long corrupted by the manuscript and early print traditions. These two points provide a foundation for the cisthon versus cissos debate. Leoniceno wants to see whether what Pliny says accords with the other ancient authorities, specifically

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382 Vide quanto modestius de Plinio quam de aliis tunc sim locutus, quos non videri eodem errore deviare sed plane aberrare asseveravi.
Dioscorides and Galen. He also wants to compare them all to “Experience”, the “teacher of all there is.” Yet this was Pliny’s own constant refrain and for a scholar who claimed to be so well versed in Pliny’s text, it is odd that Leoniceno seems unaware of it. He seems, in fact, to grudgingly admit that Politian is right that the passages in the Historia Naturalis that refer to hedera are imprecise about the Latin words to which the Greek name corresponds. Leoniceno therefore retreats into a broader criticism of Pliny’s methods and of the way in which the 20,000 “facts” contained within the Historia Naturalis have been taken as true by generations of people, with little or no attempt to verify them. There are certainly mistakes and untruths in Pliny, but with well over a millennium’s worth of manuscripts and several printed editions of the text to compare with one another, the question of whom to blame has become extremely difficult to answer. Moreover, the term errores, which figures so prominently in Leoniceno’s title, can also mean “variants” in the context of textual transmission. Leoniceno was likely aware of this double meaning, and although he does not explicitly use the term in such a context, his acknowledgment of the corrupted manuscript tradition can be taken as a tacit admission that Pliny was guilty of, at most, “erring”, not “aberring”.

Leoniceno and Politian disagreed about the implications of the passages in question, but they were both critical of Pliny himself. On the other hand, Pandulfo Collenuccio (1444-1504), a counselor of law, was a defender of Pliny. Despite his profession, as a humanist scholar he was

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383 videamus numquid Plinius in hisce omnibus cum Dioscoride, Galeno, ac Paulo ceterisve prestantibus medicis atque cum ipsa rerum magistra experientia consentiat. (fol. 4v)

384 French (1986: 254-55) agrees. “But behind the technical detail of the dispute there lay Leoniceno’s perception of the kind of author Pliny was.” Like Celsus, Leoniceno was wary of Pliny’s Latin translations of the Greek medicinal sources. French therefore identifies the primary impetus for Leoniceno’s attack on Pliny as his status as a Hellenist. “The belief in the superiority of the Greeks informed Leoniceno’s attitude to medicine.”
sufficiently well versed in plant lore for Brunfels, himself a physician, to remark on it (in haerbis versatus sit).\textsuperscript{385} In 1493, the year following Leoniceno’s critique of Pliny, Collenuccio produced his own tract defending him, entitled \textit{Pliniana defensio adversus Nicolai Leoniceni accusationem}.\textsuperscript{386} The tract has two separate dedications. The first, addressed to the book itself and entitled \textit{Lucas Ripa Regiensis ad Plinianae defensionis librum, ut exeat},\textsuperscript{387} declares on line 3 that the readers will no longer have reason to “gape” at the “deceptive mistakes” in Pliny (Collenuccio 1493: 7):

\begin{quote}
Non poterunt posthac errore fatisere vano.
\end{quote}

The final two lines express the hope that under the “leadership” of Collenuccio’s book, Pliny’s dignity and customary faith will be preserved (Collenuccio 1493: 7):

\begin{quote}
Te duce mansurum teneat defensus honorem
Plinius: et solitam pergat habere fidem.
\end{quote}

Lucas Ripa is expressing the hope that Pliny will maintain his status as an ancient natural history authority. The \textit{honor} and \textit{fides} that are his due can only be retained by virtue of the impact of Collenuccio’s \textit{liber}, which will prevent individuals from being distracted by the “mistakes” that Leoniceno has claimed to have found in Pliny. Ripa’s use of the adjective \textit{vanus} to modify \textit{error} can be taken to mean “deceptive” in addition to “careless”. As a defender of Pliny, Ripa is

\textsuperscript{385} Brunfels 1530: fol. a3.


\textsuperscript{387} The contributions of the author of this dedication, Lucas Ripa, involved “assistance” with the printed text, and he is therefore described in many library catalogs for the text as one of the authors.
unlikely to mean the former, but it does capture the implications of Leoniceno’s earlier critique. Given Pliny’s own criticism of the *magicae vanitates* (magical deceptions) of such medical frauds as Asclepiades, such terms are semantically loaded, and Ripa’s use of *vanus* therefore implies that he and Collenuccio see Leoniceno’s critique as a moral or ethical attack. Leoniceno implies that Pliny is deceptive, not simply mistaken. In his own dedication, entitled *Ad Librum*, Collenuccio directly addresses his book, bids it to turn away from monetary gain, and, referencing Leoniceno’s insistence that he is not arrogant, calls his criticisms “bites” (*morsus*) and “mere chatter” (*vaniloquos*). Collenuccio not only implies that the “crowd” (*turba*) of readers will be amenable to what is contained in his book, but calls Leoniceno a *contemptor*, a despiser, not simply a scholarly critic. He therefore interprets Leoniceno’s insistence on critiquing Pliny as hostility that is not rooted in anything justified. Yet Collenuccio also takes up Leoniceno’s distinction between *errare* (to make a mistake) and *aberrare* (to be seriously mistaken) in his own discussion of the debate about *cissos* and *cisthon*. He references the two names in Chapter 3 under the heading *De Cisso Cistho Lada* (Collenuccio 1493: 51):

*Cuiusvis hominis est errare* (inquit Cicero) *nullius nisi insipientis in errore perseverare*. *Leonicenus vero in errore illo suo quem probe Politianus castigaverat usque adeo*

388 In fact, Collenuccio turns the issue of deception around on Leoniceno with his chapter names, making it clear that Leoniceno is the one who is mistaken about Pliny, and who, by virtue of being so mistaken, has himself deceived his readers. For instance, *Caput Secundum* is called *Singula Leonicenae accusatoris capita discutiuntur: Ac primus de eo quod Plinium nominum vicinitate deceptum errasse Leonicenus calumnias* (“The chapters of Leoniceno the Accuser are discussed individually, and first is that one in which Leoniceno [makes] the false accusation that Pliny erred because of the similarity of [plant] names”). Similarly, *Caput Tercium* is called *De eo quod similitudine rerum deceptus Plinium Leonicenus insimulat* (“Concerning that of which Leoniceno, deceived by the similarity of things, accuses Pliny”). And so on.

389 *Verum age: deposito fastu contemptor: et auram et plausum: et morsus despice vaniloquos.* (Collenuccio 1493: 13).

390 *Lada* is yet another name for *cissos* and *hdera*, along with *Ladanum*. 

It is characteristic of any man to err, says Cicero, but to persevere in one’s error is characteristic of none but a fool. But Leoniceo has persisted in that mistake of his, which Politian so excellently corrected, to such an extent that he dared to state the following: that Pliny did not know how to distinguish cissus from cisthon. And he said that he would demonstrate the evidence [signs] with many arguments, which he earlier made in his writings.

This is a clever appropriation of Leoniceno’s distinction. Collenuccio implies that Leoniceno has done far worse than make a major mistake in his criticism of Pliny: he has persisted in it, insisting that he is right despite all evidence to the contrary. Unlike Politian, who is not an admirer of Pliny, and who is happy to admit that there are mistakes in the Historia Naturalis but cannot grant that the confusion of cisthon and cissos is one of them, Collenuccio is a supporter of Pliny. His motives in entering this particular debate are therefore different, although he employs a similar methodology to that of Politian. He refers to the passages in Pliny in which cisthos and cissos are described and shows how they demonstrate that Pliny understood the differences between them. Collenuccio therefore notes that Pliny described some twenty kinds of cissos (hedera) in Book 16 (in xvi° volumine cissi idest hederae viginti genera luculentissime descriptis). Yet he described only two kinds of cisthon in Book 24 (quarto vero et vigesimo cisthi duo tantum genera et utroque in loco), and in this way, distinguished between the two (ita cissum a cistho discrivit). In addition, Collenuccio cleverly calls on the authority of Theophrastus, who in De Historia Plantarum divided cissos into masculine and feminine (which

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391 Collenuccio 1493: 51.
Pliny also did). Thus, in his insistence that Pliny made a mistake, Leoniceno is also criticizing Theophrastus, a bold move (*sed qua fronte Plinium negat et Theophrastum*). Collenuccio therefore confirms Politian’s analysis, that Pliny must have known the difference between *cissos* and *cisthon*, and Leoniceno is wrong on two accounts. First, as Politian and Collenuccio show, the passage in Book 24 of *Historia Naturalis* that Leoniceno takes as his primary evidence that Pliny mistook *cisthon* for *cissos* is too vague to support this conclusion. Second, the other ancient authors who discuss *cissos* say nearly identical things about it as did Pliny. For instance, Dioscorides says in *De Materia Medica* (II.218):

> *Cissus* has many differences (according to the type) but there are three most particular kinds, for some is white, some black and another helix [spiraled]. The white therefore bears a white fruit, the black a black one or sometimes a saffron color (which the vulgar sort also call *dionysium*), but the helix [spiraled] is without fruit and has white branches and thin leaves, is full of corners and red.

Here one can see similarities between all three authors, which illustrates the complexity and difficulty of identifying the origins of any ancient natural historical account. It also confirms that Pliny was not entirely original. However, it also absolves him of accusations of deception, except insofar as he can be said to have reiterated much the same information about *cissos* as did Theophrastus and Dioscorides. There is nothing particularly incriminating in Pliny that would justify Leoniceno’s hyperbolic claim that he was a danger to his readers.

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392 Collenucco says that Theophrastus discusses the two plants in Books I and VI. In fact, Theophrastus discusses *kissos* (*kittos*) in Book III.XVIII.6: Πολυειδής δὲ ὁ κιττός· καὶ γὰρ ἕπιγειος, ὁ δὲ εἰς ὑψός αἱρόμενος· καὶ τῶν ἐν ὑψεῖ πλεῖστον γένη. τρία δ’ οὖν φαίνεται τὰ μέγιστα ὁ τε λευκός καὶ ὁ μέλας καὶ τρίτον ἑλικ. εἴδη δὲ καὶ ἐκάστου τούτων πλεῖστον. (“The ivy also has many forms; one kind grows on the ground, another grows tall, and of the tall-growing ivies there are several kinds. However, the three most important seem to be the white, the black, and the helix. And of each of these there are several forms.”) It is also worth noting that Theophrastus often seems to use the terms *kittos* and *helix* interchangeably, while also insisting on certain key differences between them.

The debate between Leoniceno and Politian about *cisthon* and *cissos* is the most famous because of the latter’s rhetorical question about a doctor being more dangerous than the disease. Yet there are several other medicinal herbs with Pliny’s descriptions of which Leoniceno took issue. For instance, at Book 25.58, Pliny had provided information about the herb *Personata*. Leoniceno fixates on Pliny’s supposed confusion of the various terms *Arction*, *Echion*, *Personacia* (or *Personata*) and *Persolata*. He insists that where Pliny’s entry in Book 25 says *Arction*, it should read *Echion*, and that this is due to a mistake in the manuscripts (*Hic lib.xxv. de Arctio, quamvis Echion errore codicis, ut arbitror, legatur, ita scribit*). However, some people call the plant *Arction* “Personacia”, a name which Pliny also uses, in addition to *Persolata* and *Persolacia*. By using all of these names interchangeably, Pliny makes the error of equating different plants (*Ita enim subiungit*). Pliny also thought, per Leoniceno, that there were two species of *Arction*, each of which is known as *Personata* and is useful for snake bites. Yet Dioscorides and Galen both thought there was only one species each of three plants, *Arction*, *Prosopite*, and *Personacia*, though they use Pliny’s own words to describe them. According to Leoniceno, the *Personata* that Pliny is describing is the same plant that is known colloquially either as *Bardana* or as *Lappa maior*. It was called *Personata* by the ancients because its leaves were used to make masks. However, it was called *Prosopite* or *Personacia* by

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394 Leoniceno 1492: 29.

395 Leoniceno 1492: 30. *Attamen et Dioscorides et Galenus ac Paulus de uno tantummodo de Arctio, Prosopite, Personacia scripserunt.*

396 Leoniceno 1492: 30. *Hic autem proculdubio Plinius inuitt illam, quae a nostris tum Bardana, tum Lappa maior vocatur.*

397 *Quam ideo veteres, Personatam dixerunt, quoniam hac propter amplitudinem foliorum, ad personatos faciendos utebantur.*
Dioscorides, Galen, and Paul, who compare its leaves to *cucurbis*, although blacker and hairier. Leoniceno’s primary issue with Pliny, therefore, is that he identifies two types of *Arction*. But the one that Pliny calls *Personata* is in fact what is now called either *Bardana* or *Lappa maior*.

Concerning the same plant (*Personata*), Collenuccio declares that Leoniceno is himself a reckless man who is in the wrong for censuring Pliny because he believed that the plant had two types (*Plinium taxat, quod duplicem illam esse crediderit*). Leoniceno also claims that *Echion* is found in the manuscripts for *Arction* without reason (*nulla ratione Echion, pro Arctio, codicis vicio positum dicit*). But Pliny does not actually propose two types of *Arction*, and so Leoniceno does not understand Pliny (*sed ne sic quoque Plinium, aut se ipsum intellixit: quod verum esse mox agnosces*).

First, Collenuccio notes that Pliny is writing about *Echion*, not *Arction*, which has heads like a viper, which is why it is so named (*quae quoniam capitula habeat, viperis similia, ideo Echios, quasi viperam cognominatur*). The two types of *Echion* are similar to *pulegium*. Some people call *Echion* “*Personata*”, but not *Arction*, as Leoniceno would like to wrongly infer. Essentially, Collenuccio is not debating what Pliny said in terms of the description of the extremely broad leaves and burs on *Personata*, but he does not agree that Pliny equates it with *Echion*, or believes that it has two types. What Leoniceno has failed to notice is that Pliny is simply reporting what other people think (*illorum sententiam*). One cannot claim that Pliny

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398 Leoniceno 1492: 30. *Hanc vero eandem, eadem ratione Dioscorides, Galenus, et Paulus Prosopitem, id est, Personaciem, nuncuparunt, ac foliis cucurbitae, nigrioribus tamen, atque hirsutioribus, constare tradiderunt.*

399 Collenuccio 1493: 68.

400 Collenuccio 1493: 68.

401 Collenuccio 1493: 69.
identified two types of *Personata* simply because he wrote that some people call it *Echion* (Collenuccio 1493: 69):

> Neque enim ideo duplicem Personatam esse credidit Plinius, quia quosdam Echion Personatam dicere, et ex aceto radicem dare scripsit.

Nor indeed did Pliny believe on that account that *Personata* has two kinds, because he wrote that certain people call *Echion* “Personata”, and that they render its root in vinegar. For Collenuccio, the problem with the critics of Pliny with regard to his entry on *Personata* is with the phrase *Quidam dicunt, ergo Plinius credidit*. This is simply untrue, especially since Pliny actually said that *Echion* was triplex (*Echion triplex pinxerit*). He also said, referring to the differences between the leaves and flowers of the two plants, that *Echion* was not *Personata* (*et ex foliorum et floris differentia non esse Echion personatam aperte senserit*).\(^{402}\) It is only after this that Pliny turns to *Arcion*, which he calls *Personata*, using in the former the Greek name, and in the latter the Latin one. This is the herb that is so well known that everyone knows of it. Collenuccio therefore argues that Leoniceno should realize that Pliny was referring to *Arction*, not *Echion*, which is the plant that is similar to *pulegium* (pennyroyal), whereas *Personata* has leaves larger than *cucurbis*. Despite, this, some have thought that the two herbs are the same (*quas unam herbas esse quidam putaverunt*).\(^{403}\) It was debated, therefore, what name Pliny himself used, as opposed to later scribal emendations. The confusion regarding the Greek and Latin names led to further confusion as to which plant Pliny claimed had two types. Moreover, Pliny was being blamed by the humanists for simply reporting what others thought.\(^{404}\) Despite all of this, thanks to Collenuccio’s analysis, Pliny is reestablished as trustworthy. When he says

\(^{402}\) Collenuccio 1493: 69.

\(^{403}\) Collenuccio 1493: 69.

\(^{404}\) Otto Brunfels would in 1530 rehash this very discussion. See Chapter 4.
Echion, he means Echion, not Arction, whatever errant manuscripts and editions might say. This was the state of the humanist scholarly debate regarding Pliny in 1493, when Ermolao Barbaro entered the discourse. Leoniceno and Politian had expressed a legitimate concern about the practical effects of mistakes in Pliny’s text and undermined his long-standing authority. Collenuccio had reinstated Pliny as a reliable source of natural historical information, and deflected blame for any mistakes to the manuscript tradition and to Pliny’s own sources.

Ermolao Barbaro (1454-1493) was a Venetian humanist and Venetian ambassador to Rome who was controversially appointed by Pope Innocent VII as the Patriarch of Aquileia in 1491. Barbaro managed to complete in his brief tenure,405 prior to his untimely death of the plague in 1493, a work called Castigationes Plinianae et in Pomponium Melam, in which he emended some 5,000 entries in Pliny’s Historia Naturalis. The Castigationes soon became one of the most authoritative critiques of Pliny, in spite of Leoniceno’s work on the same text the year prior and Merula’s and Perotti’s critiques two decades prior. However, in the case of the latter two scholars, their critiques of Pliny had taken the form of epistles. Perotti had also written a treatise on the art of composing letters, rendering his epistle to Guarnieri as rhetorically significant as a printed text. Nevertheless, the form of their critiques of Pliny was different from Barbaro’s. Following a lengthy preface, the Castigationes consist of a very spartan, stripped-down catalog of the errors in Pliny’s text in order, from the first book to the last. There is no debate, contrived or otherwise, between Barbaro and another scholar, because Barbaro has no

405 See Williams 2017: 149-150. Barbaro’s appointment was made without consultation of the Venetian Republic’s patriciate. He accepted the position anyway, despite the Republic’s objections. “Refusing to leave Rome, Barbaro stayed close to the papal court, bitter at the Republic’s high-handedness and distressed by the disgrace to the family name, but absorbed nonetheless in his work on the Plinian Castigationes. Matters remained at an impasse until Barbaro, at the age of only thirty-nine, died of the plague on July 24 or 25, 1493.”
need for extra verbiage and discussion. He simply presents his opinion on the various entries. Moreover, both Merula and Perotti were focused on the errors made by the *correctores* of the first two printed editions, whereas Barbaro was also focused on the errors made by Pliny himself. This is a crucial difference in content, and marks a shift from seeing Pliny as authoritative, to viewing him as capable of making serious errors. This had been precisely the point made by Politian and Leoniceno, but Barbaro does not engage in the same kind of textual criticism as they did. Barbaro’s bald, no-frills presentation of Pliny’s mistakes leaves no room for an opposing position, and this, combined with his status as the Venetian ambassador, meant that the *Castigationes* quickly became the definitive humanist takedown of Pliny.

In the preface, Barbaro begins by dedicating his work to the Pope, noting that doing so is an ancient practice and that the content of an author’s “nighttime scribblings” (*lucubrationes*) does not matter, only that they not be obscene (*nec interest qua materia: modo non obscena*). In this way, Barbaro establishes the suitability of the subject matter of the *Castigationes*,

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406 Barbaro notes that he had actually begun writing the *Castigationes* prior to his nomination as Venetian ambassador and that he intended to send them along to some peers. He was heavily advised not to (*gravissime reprehendus fuissem*), but to instead consecrate them to the Pope (*nisi eas [qualescumque forsent] numini et maestati tuae consecrassem*).

407 Given the status of his addressee and the fact that Pliny was a pagan, Barbaro sees fit to assuage any nerves that the Pope might have about the suitability of Pliny as a subject. He cleverly accomplishes this by saying that it is the Pope’s place to use what “thieves have taken”: *Quem simul atque suscipisses periculum non esset: uti (quae tua foelicitas et auctoritas est) denuo pessimorum latronum praeda fieret.* (“At the same time, too, there was no danger that you would have incurred. As is your felicity and your authority, it could happen that you make use of the spoils of the worst thieves.”) (*Castigationes*: aii recto). This is a trope in Christian writing, and can be seen in Augustine’s *De Doctrina Christiana* II.60 when he said, “Moreover, if those who are called philosophers, and especially the Platonists, have said aught that is true and in harmony with our faith, we are not only not to shrink from it, but to claim it for our own use from those who have unlawful possession of it.”
which is both Pliny’s text, the *Historia Naturalis*, and Pliny himself. Barbaro therefore poses the following rhetorical conditional: if one can say that Pliny has been in some way restored, then so too can he return from the dead (*Iam ipse Plinius: si quemadmodum restitutus fere creditur: ita redire posset ab inferis*). Barbaro is referring not just to Pliny’s text, but to his authority, which is also being reinstated. This return is the result of the proliferation of printed editions of Pliny’s work, but it is also the result of the attention Barbaro himself is giving to the errors contained within it. As for Barbaro himself, he has “healed” some 5,000 “wounds” inflicted on Pliny by the booksellers (*quinde milia in eo fere vulnera Librariorum sanavimus*). At the very least, he has “shown how to heal them” (*quemadmodum sanari possent ostendimus*).

In contrast to Niccolò Perotti, who specifies the sins of the *correctores* (the editors of Pliny), Barbaro points to the booksellers as culprits, and insists upon his own modesty in light of the fact that Pliny was not himself without flaws (*Dixi Librariorum: ne quis aut me parum pudentem esse: aut Pliniam errasse dubitaret*). Barbaro also employs the language of medicine (*sano, salus, dignitas*), battle (*vulnus, periculum, praeda*), and death (*redire...ab inferis*). By doing so, Barbaro signals to his readers the pathological nature of editing and printing an ancient text. Yet this pathology is not limited to the text itself, which makes the final clause of the above statement particularly important: *let no one doubt that Pliny himself made mistakes*. In using the metaphor of healed wounds, Barbaro implies that the author is embodied in the text. Pliny is therefore also in need of Barbaro’s ministrations. Barbaro’s claim therefore goes beyond those of

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408 Given the number of printed editions of Pliny in the preceding twenty years, and the high-profile nature of the recent debates about him, it is not only plausible but probable that Pliny was on the radar of the Church in Rome. He was not just of interest to philologically minded scholars, but to those associated with the Church. The issue of suitability is different in that context than for humanist scholars.
Perotti and Merula, and not only dethrones Pliny as an ancient authority, but establishes Barbaro himself as the new authority.

Barbaro ends the dedication on the same folio, dating it *Octavo Kalendas Septembris MCCCCXCI* (August 25, 1492). However, on the reverse (aii verso), there is an extra paragraph, addressed to the reader (*monendi sunt haec legentes*), in which he explains the layout of the *Castigationes*. He specifically cites the “Venetian codices”, which include both de Spira’s edition and the later Venetian editions, as sources for his division of the chapters (*eam nos tantum secutos: quae in Venetis codicibus fecundae impressionis habeatur*). Barbaro has chosen to do this because it will make the work more accessible to future readers who wish to “describe works.” Barbaro deems this organization necessary because, while the novelty of the printing press had worn off by the end of the 15th century and printed books were now readily available everywhere, the technology was not without its faults and errors were commonplace (*nunc libri passim imprimuntur: sed impressi scatent erroribus*). Thus, in working on his own edition of Pliny, published posthumously in 1497, Barbaro sought out craftsmen skilled in the art of printing (*ut opifices haberemus et diligentes et doctos*), in order to avoid even the impression of incorrect editing and collation (*Ita: uti: ne Syllaba quidem aut subsultet fere: aut perperam collocata esse videatur*). One of the major issues with the early editions of Pliny was technological, including the fact that the printers did not have Greek type, and so left blank spaces in the text. This was a serious issue given the large number of Greek characters required to accurately print a Plinian text, and one that had to be addressed in order to ensure that

409 *Castigationes* aii verso. To be precise, the 1497 edition of Pliny was not technically Barbaro’s. Rather, it incorporated his corrections.

410 This was a feature of the 1469 *editio princeps*. See Chapter 2 for a discussion of this and examples.
a printed edition was as correct as possible. It is in the context of this discussion that Barbaro introduces the term *imposterum* (late Latin from classical *impono*), signifying something like an imposter or fake. He is discussing how it is important to beware of errors in any edition or commentary on Pliny (*aliaquin si ulla commentatione cavendi sunt errores: in ea maxime prudentium id fuit: in qua ex professo castigabantur*). Such awareness, he argues, constitutes an expression of care or concern, both for the text being edited and printed, and for one’s own labor. However, if one is examining an *imposterum*, a fake or a forgery, then one’s labor will be in vain and come with heavy consequences (*quae cura nisi adhibeatur imposterum: non modo frustra: sed etiam gravi damno laborabitur*). The implication is clear: poorly-edited editions of Pliny are not authentic and are equivalent to fakes.

In effect, what Barbaro is doing by publishing the *Castigationes* ahead of Pliny’s text itself is anticipating and heading off editorial and textual criticism of his edition of Pliny. There are literally thousands of textual issues that cannot be addressed simply by carefully collating the manuscripts and previous editions. Many of the “errors” that Barbaro points out are only evident by reference to other ancient sources, such as Dioscorides and Galen. The *Castigationes* therefore function as a very early precursor to the modern *apparatus criticus*, with citations of external authorities. Barbaro’s approach seems on the surface to be a critique of Pliny as a natural historian, but it is in fact more sophisticated than that. Barbaro is fully aware of the fact that because he himself has access to multiple printed editions and manuscripts of Pliny’s text, in addition to those of Dioscorides and Galen, he is uniquely positioned to perform this level of cross-analysis and therefore recognize the textual errors for what they are. Pliny did not have this same level of access. Barbaro recognizes this and chooses to refer to the errors in Pliny as

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411 *Castigationes* aii verso.
“wounds” that he has healed. Wounds can of course be self-inflicted, but the term also implies harm inflicted on a body by an external source. Barbaro is therefore both critical of Pliny and absolves him of a degree of guilt.

Having established himself as the authority on Pliny, it is remarkable that Barbaro does not mention the two passages, *HN* 16.145 and *HN* 24.81-82, which are the focal point of Niccolò Leoniceno’s debate with Politian. In his list of emendations for Book 16, Barbaro has nothing to say about the accusation that Pliny mixed up *cisthon* and *cisso*. For the passage in Book 24, the closest he comes is with regard to 24.77, when Pliny is discussing the medicinal benefits of ivy (*hedera*). The sentence in question is:

> hedera quam chrysocharpon appellavimus bacis aurei coloris viginti in vini sextario tritis, ita ut terni cyathi potentur, aquam quae cutem subieri urina educit.

[Regarding] the *hedera* (ivy) that we have called “Chrysocarpon”: if twenty of the berries, which are golden in color, are rubbed into a sextarius of wine, so that they can be drunk three cyaths at a time, then in the urine it will draw off the water that collects under the skin.

However, the edition that Barbaro was using was Venetian, and originally, it had *hederae quam Chrysolarion appellamus*. Of this, Barbaro notes that ancient manuscripts had *appellavimus*, not *appellamus*, and the name *Chrysocarpon*, not *Chrysolarion*; and that this was also the case in Dioscorides.412 The later printed editions of Pliny have therefore retained Barbaro’s emendation.413 But he says nothing about *cisthon* versus *cisso*.

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412 At the tail end of Dioscorides’ entry on *kissos* (*peri kissou*, II.210), he lists other known names for the plant, including χρυσόκαρπος. Of note, however, is that the placement of these alternative names in Dioscorides depends on the manuscript or printed edition. Thus, in the Leipzig edition of 1829-30, the names have all been moved to the beginning, placed parenthetically after the plant is first named. For *kissos*, then, the entry begins, “*Kissos*, which some call *kitharon*…”

413 The 1469 Pliny (page 480) has *Hedera quam Chrysolariam appellavimus*. 
Between the *editio princeps* of 1469 and Barbaro’s *Castigationes* in 1493, there were eleven editions of Pliny printed in Italy, counting inclusively. Of these, five were printed in Venice. These are the 1469 by de Spira; the 1472 by Nicolas Jenson;\(^{414}\) the 1483 by Reynaldus de Novimagio;\(^{415}\) the 1487 by Marinus Saracenus;\(^{416}\) and the 1491 edition by Thomas de Blavis, de Alexandria.\(^{417}\) In chronological order, these are the versions of these two passages from the five Venetian editions to which Barbaro could have had access, with textual variations bolded:

**1469:** An entry entitled *De Hedera* and numbered CL begins on page 314. This is the relevant part of the entry:


Passage 24.81 is on page 480:

> Graeci vicino vocabulo *ciston* appellant fruticem maiorem thypo foliis ocimi. Duo eius genera flos masculo rosaceus, *foeminae* albus. Ambo prosunt *dissintericis* et solutionibus ventris in vino austero ternis digitis flore capto et similiter bis die poto ulceribus veteribus et ambustis cum *Cera* et per se oris ulceribus sub his *nascitur maxime hypocisis*, quam inter herbas dicemus.

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\(^{414}\) [https://archive.org/details/caiiplyniisecund00plin](https://archive.org/details/caiiplyniisecund00plin) (ISTC [https://data.cerl.org/istc/ip00788000](https://data.cerl.org/istc/ip00788000)).


\(^{416}\) [https://nbn-resolving.org/urn/resolver.pl?urn=urn:nbn:de:bvb:12-bsb00060038-3](https://nbn-resolving.org/urn/resolver.pl?urn=urn:nbn:de:bvb:12-bsb00060038-3) (ISTC [https://data.cerl.org/istc/ip00795000](https://data.cerl.org/istc/ip00795000)).

\(^{417}\) [https://collections.thulb.uni-jena.de/receive/HisBest_cbu_00008839](https://collections.thulb.uni-jena.de/receive/HisBest_cbu_00008839) (ISTC [https://data.cerl.org/istc/ip00796000](https://data.cerl.org/istc/ip00796000)).
1472: It is with this edition that we first see the Venetian numbering system that Barbaro mentioned in his preface. Where in the 1469 edition, the entry on Hedera in Book 16 is numbered CL, here it is numbered XXXV (16.35, pg. 321):


The *aut* in the last sentence has been changed to *et*, and *Etenim* has changed to *Est enim*; however, this does not significantly alter the meaning. In either version, one gets the idea that hedera is either *candida* (white) or *nigra* (black), and that there is a third kind known as *helix* (spiraled). The entry in Book 24 is now numbered X as opposed to 81 (24.10, pg. 484):


This entry also shows several crucial differences from the 1469 edition: the spelling of *cisthon*; the use of *albet* instead of *albus*; *trinis* instead of *ternis*; and the final clause, which has *hederas* instead of *herbas*, and *diximus* instead of *dicemus*.

1483: This edition retains almost all of the minor changes made in the 1472 edition, but introduces a significant error: where the previous editions had *maior traditur*, this edition has *miror traditur*:


Ulceribus veteribus et ambustis cum caera: et per se oris ulceribus. Sub his maxime nascitur hypocistos, quam inter hederas diximus. (pg. 474)

1487: This edition has evidently copied the 1483 edition, because it reproduces the phrase miror traditur, along with the spelling of ciston and hypocistos:


24.10: Graeci vicino vocabulo ciston appellant fruticem maiorem tymo foliis ocimi. Duo eius genera. Flos masculo rosaceus: foeminae albet (sic). Ambo prosunt dysentericis et solutionibus ventris in vino austero trinis digytis flore capto et similiter bis die poto. Ulceribus veteribus et ambustis cum caera et per se oris ulceribus. Sub his maxime nascitur hypocistos, quam inter hederas diximus. (pg. 369)

1491: This edition follows suit, further cementing the use of miror instead of maior and introducing a new minor change, from ocimum to ocinum, for the name of the plant whose leaves Ciston’s resemble:


Finally, in Barbaro’s own edition of Pliny, he retained the numbering system found in the previous editions. However, the mistakes that the previous editions had codified were remedied.
in Barbaro’s edition.\textsuperscript{418} He therefore reverts back to the phrase \textit{maior traditur} in 16.35, but retains the changes that were made to the last sentence (pg. 242):

\begin{quote}
\end{quote}

This is important because Barbaro has clearly noticed that \textit{miror traditur} was introduced in the 1483 edition, along with the other minor changes in the last sentence. He realized that \textit{miror traditur} is nonsensical and therefore needs to be corrected, but the change from \textit{Etenim candida aut nigra hedera} to \textit{Est enim candida et nigra hedera} is superior, as it makes clear that there are two kinds of hedera, white and black. He therefore retains this emendation.\textsuperscript{419} In Book 24, Barbaro uses the spelling \textit{ciston}, and retains the use of \textit{foeminae albet} as opposed to \textit{foeminae albus}, as in the 1469 edition. He also reverts back to \textit{ocimum}, while retaining \textit{inter hederas diximus} (p. 363):

\begin{quote}
\end{quote}

What this shows is that Barbaro was not interested in decrying Pliny as a natural history authority. Rather, he ensured that Pliny’s text was accurately preserved in printed form. In this passage in particular, it is possible to see how Barbaro carefully compared the printed editions

\textsuperscript{418} As with all of the other, preceding editions, however, Barbaro does not specify whether or not he used any particular manuscript. In Chapter 2, I made a case for one of Petrarch’s annotated manuscripts, P1 (6802), or one of its descendants, being the reference for Johannes de Spira’s 1469 \textit{editio princeps}. In fact, P1 (6802) does use \textit{maior traditur} in this passage. See fol. 122v column 1.

\textsuperscript{419} In addition, Barbaro’s reading is what is found in P1 (6802), fol. 122v, column 1.
and made decisions based on what he considered the best reading.\textsuperscript{420} Where Niccolò Leoniceno had focused on the pathological implications of a potential error in nomenclature, Barbaro was concerned with the restoration of the text as a whole and with its acceptance by the main religious institution of the time, the Catholic Church. What Barbaro accomplished was a new, definitive version of Pliny’s text, one that not only could be trusted for accuracy, but could serve, itself, as an ambassador to Rome for the technology of printing and for the study of natural historical phenomena. What Barbaro could not have predicted was how his own work on Pliny would become so authoritative as to influence medical practitioners in the 16th century, and, as I will argue in the next chapter, not only the development of botany as a scientific discipline, but the systematization of botanical nomenclature and, more broadly, the language of the study of plants.

\textbf{Conclusion}

There is a common feature of all of the humanists whose work we discussed in this chapter: they were all dealing with Pliny at a remove, in terms of his text, its errors and idiosyncrasies, and not in terms of the substance of the work. This is true even for the argument between Leoniceno and Politian, who were engaged in textual criticism, not scientific verification of the claims made in Pliny. They did not find the plants in question, visually examine them, and compare this analysis to the text. There is a simple reason for this. Not one of the Italian humanists who wrote about Pliny’s text were herbalists, skilled or trained in medicine and natural history. As such, two questions necessarily arise: first, what exactly were they criticizing? Second, how could they possibly claim to be correct themselves in their emendations? By focusing so much energy on

\textsuperscript{420} For example, P1 (6802) reads \textit{ciston}, to which Barbaro reverts, but uses \textit{ocymi, foeminae albus}, and \textit{hyplocitis}, which he rejects. See fol. 184v column 2.
establishing an authoritative version of Pliny’s text, the Italian humanists were faced with the consequences of the long, corrupted manuscript tradition, and even of *reensio ope ingenii sui*. The humanist concern for the real consequences of incorrect plant identification and description (for example, accidental poisoning) is evidence that they were trying to assuage their anxiety about the ambiguity and incompleteness that had long characterized the florilegia and herbal traditions. This frustration on the humanists’ part took partial form in their own appropriation of the terminology of medicine. They focused on “healing” Pliny’s text, which was a pathological issue for them. They stressed how mistakes in the text could be fatal, but they also placed a moral value on a correct, authentic, well-collated and edited text, regardless of any question of Pliny’s own motives and methods. Where Pliny had himself criticized Asclepiades’ methods and motives, the Italian humanists questioned the methods and motives of the printers and editors of his text. This transformed even further by the 1490s, when Ermolao Barbaro and Niccolò Leoniceno began the process of questioning Pliny’s own authority. Yet, by focusing on the stabilization of Pliny’s text, his emenders missed a key point: Pliny had synthesized the methodologies of Theophrastus and Asclepiades, a fact that sheds light on the import of his rhetorical asides in Books 25 through 30. Thus, the stabilization of Pliny’s text was also a stabilization of Theophrastus’ and Asclepiades’ texts as objects of reception. Further, Pliny’s inclusion of the lore surrounding the so-called *magicae herbae* meant that this “knowledge” also was stabilized in the work of the humanists. Finally, Pliny recognized the importance of the connection between nomenclature and discovery, implying that a plant with an inferior name, such as one that does not provide information for identification purposes, is *inventa* (unknown).

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421 Indeed, Plutarch’s frustrations with regard to the state of classical texts within the manuscript tradition could be taken as novel for the time period, or a precursor to Lorenzo Valla’s era of textual criticism.
For these reasons, Pliny’s text is an invaluable object of reception and transformation. In the same way, the reception of his text in the late 15th century is a resource that can be mined for clues regarding the development of botany in the 16th century. Not only did the humanists discussed in these two chapters assist in stabilizing Pliny’s text, but, because of their own input on the subject matter, they also produced a body of texts supplementary to Pliny’s, which contributed to a new discourse surrounding the ancient author. It was within and because of this discourse that the first botanical texts of the 16th century appeared. Unfortunately, this positive take on the inherent value of Pliny’s text and its reception is ignored by most historians of botany, science, and the Renaissance. The fact that Brunfels, whose work involved mapping Greek and Latin plant names onto German ones and who called the ones he could not identify in his sources *herbae nudae*, is relegated to a footnote in Morton (1981) is typical of his treatment by many historians of botany. Morton is aware of the fact that by virtue of trying to map the plants that grew in their environment to “the plants of the classical pharmacopeia or to the relatively small number of additions made by medieval herbalists,” the early botanists were forced to acknowledge that some plants could not be so mapped. However, he seems unaware that Brunfels had encountered this issue in 1530. Rather, Morton cites Antonio Musa Brasavola’s 1536 *Examen Omnium Simplicium Medicamentorum* as the first botanical text to remark on this problem. Morton would be correct if he were looking for self-awareness in the early botanical authors. For instance, Musa states that Dioscorides and Pliny did not describe even 1/100 of the herbs in the world, whereas Brunfels simply expresses frustration at not finding the *herbae nudae* in his sources. However, from the standpoint of attempting to describe, name, and categorize these unknown plants, Brunfels’ efforts cannot be ignored as non-botanical.

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422 Morton 1981: 118.
As with many other historians and scholars of botany, Morton only credits Brunfels and Leonhard Fuchs (1501-1566)\textsuperscript{423} with the nature and quality of the illustrations in their works.\textsuperscript{424} He claims that there are two important effects of these two authors and their works. First is the turn to realism in botanical illustration and second is the creation of a body of plants that can reliably be identified, by reference both to the illustrations and to the stabilized and cross-referenced nomenclature.\textsuperscript{425} At the end of Chapter 4, entitled “The Dark Ages of Botany in Europe (200 to 1483)”, Morton explicitly states that the event that occurred in 1483 to warrant his claim that this was the origin of botany was the translation from Greek into Latin of Theophrastus’ two texts, \textit{De Causis Plantarum} and \textit{Historia Plantarum}, by Theodore de Gaza. Morton refers to Theodore’s translations as “the event which catalysed the transformation of the science to a new stage”, and says that Theodore “made known to the modern world the greatest achievement of ancient botany at a time when it could still be scientifically useful.”\textsuperscript{426} There are, however, two issues with Morton’s claim. First, he does not adequately explain how this

\textsuperscript{423} Author of the 1542 \textit{De Historia Stirpium}. See the conclusion for a discussion of this text.

\textsuperscript{424} It is worth noting that none of the early printed editions of Pliny, and very few of the manuscripts, were illustrated.

\textsuperscript{425} Morton 1981: 124. “In the first place they established the requisites of botanical illustration - verisimilitude in form and habit, and accuracy of significant detail...secondly, they provided a corpus of plant species which were identifiable with a considerable degree of certainty by any reasonably careful observer, no matter by what classical or vernacular names they were called by different authors, or in different countries.” Morton’s text is useful, but frustratingly imprecise at key points. For instance, it is organized roughly chronologically and diachronically, such that Chapter 4 is entitled “The Dark Ages of Botany in Europe (200 to 1483)”, and Chapter 5 is entitled “Renascence of Botany in Europe: from Herbal to Flora (1483 to 1623)”. This would imply that Morton locates the beginning of European scientific botany in the year 1483, some 14 years after the \textit{editio princeps} of Pliny, and 47 years before Otto Brunfels’ \textit{Herbarum Vivae Eicones}.

\textsuperscript{426} Morton 1981: 100.
particular translation affected the development of botany as a science. While Brunfels, whose work did in fact contribute to this development, does cite Theophrastus as an authority,\textsuperscript{427} he is hardly the only ancient writer to whom he gives credit. Second, Pliny’s work had been printed well before Theodore de Gaza translated Theophrastus. This is particularly relevant given that even Morton acknowledges that Theodore “relied fairly heavily on Pliny’s rendering of many passages”\textsuperscript{428} of Theophrastus.

I therefore disagree with Morton’s dismissal of the discourse surrounding the early printed editions of Pliny,\textsuperscript{429} especially among the Italian humanists discussed in this chapter: Merula, Perotti, Leoniceno, Collenuccio, and Barbaro. I argue instead that the debates in which these individuals were engaged with respect to Pliny’s text, and Pliny himself, were far more important than had previously been thought. These debates also provide us with alternative dates for such nebulous historical moments as “the advent of botany”. To reiterate, I argued in Chapter 1 that for Pliny, the twin issues of knowability and nomenclature were tied to his argument for experience over book learning. In Chapters 2 and 3, I have shown that in the late 15th century, when multiple editions of Pliny were printed in just a few decades, these same issues came to be dependent on the accurate editing and transmission of Pliny’s text. In effect, the basis for accurate identification of plants had turned from reliance on personal observation to ensuring that Pliny’s text was stabilized and accurate, in order to further solidify his status as a natural history authority. In Pliny, knowability is dependent on good nomenclature. He argues for

\begin{flushright}
\textsuperscript{427} And one can assume that his familiarity with that author was aided by such translations into Latin.
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\textsuperscript{428} Morton 1981: 100.
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\textsuperscript{429} And that of Davis (1995). See the introduction to this chapter for a brief summary of his assessment of the same discourse as a mere opportunity for philologists to flaunt their skills.
\end{flushright}
descriptive plant names, so that individuals can identify plants and therefore also put them to good use. In the projects of the humanists whom we have discussed in this chapter, knowability is dependent on accurate transmission. The humanists were not trying to reject the argument that Pliny had made, in favor of experience over book learning. Rather, they saw the stabilization of a printed text as supplementary to and complementary of knowledge gained from experience. In the next chapter, we will turn to Otto Brunfels’ own text, the *Herbarum Vivae Eicones* of 1530. As we will see, knowability in Brunfels is reduced to a process of verification. However, the facts preserved in printed texts had to be vetted by Brunfels’ own experience as a medical doctor and by reference to the lifelike illustrations that he commissioned. In this way, Brunfels comes full circle, back to Pliny’s original claims about naming, identifying, knowing, and transmitting information about plants.
Chapter 4: Otto Brunfels: *Alii Viderint* (Let Others Deal With It)

**Introduction**

In Chapter 1, we examined Books 25 through 30 of Pliny the Elder’s *Historia Naturalis* within the framework of *allelopoiesis*, a classics-focused reception methodology in which a reference sphere has a reciprocal relationship with a reception sphere. In Chapters 2 and 3, we discussed the manuscript tradition and printed editions of Pliny, and the reactions of the Italian humanists to the latter. In this chapter, we will turn to a particular text from the early 16th century, a modest herbal written in Latin by a German physician named Otto Brunfels. This herbal will be treated as another *allelopoietic* locus of transformation, which, much like Pliny’s text, is embedded in a reception sphere, reacting to and transforming Pliny’s text and the Italian humanist emendations of it. It is also part of a reference sphere, in which the herbal itself is complicit in and crucial to the development of formal botanical Latin. The objective in this chapter is therefore to tease out the two sides of the reciprocal relationship between Otto Brunfels’ herbal and a) Pliny’s text and its 15th-century Italian humanist reception, and b) the development of formal botanical Latin. This latter contribution constitutes a transformation whereby the reception sphere itself becomes the reference sphere. Transformation methodology and *allelopoiesis* are designed to handle the reception of classical antiquity in the Renaissance, but they are very closely related to Foucault’s

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episteme and Pamela Smith’s scientific “discourse”. The transformation process is inherently liminal and therefore it will not be fully clear how Brunfels’ herbal functions as the locus of a transformation until its own reception sphere is considered in the conclusion, which deals with Leonhard Fuchs (1501-1566) and other 16th-century botanists.

Otto Brunfels (c.1488-1534) was a German physician at Bern who published between 1530 and 1536 three volumes of personal observations about German plants, in which he provided both their Latin nomenclature and their names in the vernacular. Brunfels’ original plan for the book had been simply to map the plants identified by the ancients onto plants known in Germany. This was to serve as a reference-point for other physicians and herbalists. Brunfels’ publisher, Schott, also employed Hans Weiditz (1495-c.1537) to produce realistic illustrations of plants throughout Germany, which for Sprague (1928) is precisely the feature that rendered his

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431 As described in Le Mots et les Choses, 1966: 140ff. See the Introduction.

432 Smith, Pamela. 1994. The Business of Alchemy: Science and Culture in the Holy Roman Empire. Princeton, N.J.: Princeton University Press. Smith uses the term “discourse” to describe what is meant by the term “science”. In some ways, this serves to highlight the literal meaning of the term scientia, i.e., “what is known”. Discourse is really just a set of facts that serve an intellectual purpose in a particular time and place, which agrees with the Kuhnian concept of a scientific paradigm: what we consider to be knowledge is always subject to change and to the limitations of our times.


434 This can be deduced from the full title: Herbarum Vivae Eicones ad Naturae Imitationem, Summa cum Diligentia et Artificio Effigiatae, Una cum Effectibus Earundem, in Gratiam Veteris Illius, & Iamiam Renascentis Herbariae Medicinae. (“Living Images of Herbs, in Imitation of Nature, with the Highest Diligence and Skill in the Portrayal, together with the Effects of the Same, in Gratitude for that Ancient [Authority], and Medicines from the now Reborn [profession of the] Herbalist”).
herbal crucial to the development of botany as a science.\textsuperscript{435} Weiditz’ woodcuts make identification of plants a far more precise process than it had ever been.\textsuperscript{436} Yet Brunfels’ botanical illustrations are generally treated as the sum total of his contribution to botany.\textsuperscript{437} In this project, I argue that Brunfels did far more than simply employ a skilled woodcut artist. Rather, his herbal interacts with Pliny the Elder’s \textit{Historia Naturalis} as well as a number of late-15\textsuperscript{th}-century Italian humanist texts that form a reception sphere around it. Simultaneously, Brunfels’ herbal functions as a reference sphere, one in which the descriptions of plants transform from the classical Latin of Pliny and his rough contemporaries, and the amalgam of

\textsuperscript{435} Sprague 1928: 79. The irony is that Brunfels himself did not recognize the value of these illustrations and often wrote his entries without having consulted them, although in some instances at least, this was due to delays. See p. 235 for his frustration thereof.

\textsuperscript{436} Despite this, there are some errors in Brunfels, in which some illustrations do not match the plant description they accompany. For example: \textit{Herba Roperti} (\textit{Germanium Robertianum} L.), which is actually \textit{Erodium cicutarium} L. (Sprague 1928: 80, cf. Fuchs 1542:18).

\textsuperscript{437} The 20\textsuperscript{th}-century botanist-historian Agnes Arber, author of \textit{Herbals, their Origin and Evolution} (1912), is the source of the majority of the material for modern scholarship on the medieval herbal tradition. In the essay “From Medieval Herbalism to the Birth of Modern Botany”, Arber focuses on the effect of the illustrations of plants in printed books on the development of botany as a science. For example, it was not uncommon for printers to reuse woodcuts of one plant to illustrate another, to save money. At the same time, the same name is often used for different plants, even those from different genera. The resulting confusion is cited by Arber as crucial to the development of Linnaeus’ binomials. Arber’s work is historical, tracing the progression of herbals over the course of two centuries, from 1470 to 1670, all the way to botany as a modern science. Outside of the world of book scholarship, in the scientific community, Arber is seen as the precursor to Martin Kemp, whose 1990 \textit{The Science of Art} fleshes out the proposition that illustrations have a function in scientific identifications, descriptions, and diagnoses of taxa. Kusukawa (1997) has even traced the value and use of illustrations on botanical study back to Fuchs’ \textit{Historia Stirpium}, and criticized Arber for having dismissed the importance of Fuchs’ work in the history of plant taxonomy. (Kusukawa 1997: 404.) Arber regarded Fuchs as a mere regurgitator of Dioscorides, and stated that Fuch’s value was primarily in his illustrations, describing his writing style as “limited and imitative” (Arber 1944: 327.) Similarly, Arber said of Brunfels, “The significance of Brunfels’ herbal in the history of botany is not, indeed, to be looked for in the text, but in the illustrations, which are superbly drawn though with no sacrifice of realism to artistry” (Arber 1944: 324).
medieval Latin and the vernacular that characterizes the herbal tradition. The Latin descriptions of plants in Brunfels do not simply differ from these. Brunfels’ Latin actively transforms them and thus contributes to the development of formal, modern botanical Latin. The methodology of allelopoiesis therefore underlies the argument that the Latin of Brunfels’ herbal shows the markers of classical and medieval “botanical” Latin, as well as the formal botanical Latin that began to develop in earnest with Leonhard Fuch’s 1542 De Historia Stirpium.

In order to understand this claim, two epistemic data points first need to be considered, which will provide important contextual information that links Brunfels, a German, to the Italian humanist tradition. In 1441, Lorenzo Valla published his Elegantiae Linguae Latinae, in which he argued that the Roman Empire still survived wherever the Latin language endured in its classical state. In the proemium, he states outright that “our own men”, by which he means Italians, have surpassed everyone else in matters of linguistics (Proemium, a2):

Cum saepe mecum nostrorum maiorum res gestas aliorumque vel regum vel populorum considero: videntur mihi non modo dicionis nostri homines: verum etiam linguae propagationem caeteris omnibus anteceluisse [sic].

Whenever I think to myself about the accomplishments of our ancestors, and those of others, whether kings or common people, our own men seem to me to have surpassed everyone else in the propagation not only of their power but also of their language.

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438 Brunfels cannot be credited with creating a new language or linguistic phenomenon. Even modern botanical Latin is not really a new language, but a strict set of rules and suggestions for using an existing language with which many botanists are unfamiliar but required to have a basic knowledge. By “formal”, I am therefore referring to the emergence in the 20th century of rules and recommendations for nomenclature and the description of plants.

439 1479 edition. Regarding anteceluisse, this is how the word appears in the printed text. Antecello has no attested perfect outside of this, but Prof. Fortson has suggested that Valla may have constructed the perfect stem antecelu- by reference to excelui or praecelui.
With regard to political power, however, other nations and peoples pose a threat, even if none can be said to have ennobled their own language as have “we”, that is, the Italians (*nullos tamen ita linguam suam ampliasse: ut nostri fecerunt*). Valla’s arguments for classical Latin and rhetoric are well-known and he made liberal use of classical rhetoric, specifically ἀνασκευή and κατασκευή, i.e. “refuting and confirming”, which roughly correspond to his own technique of dialectic. This was most famously applied in his argument that the Donation of Constantine was a forgery. However, there was another, political effect of Valla’s promotion of classical Latinity: an anti-German and anti-imperial attitude that soon developed in Italian humanist circles. Valla’s preferred Latinity was that of the papacy, the Latin used by the Catholic Church in its liturgy and documents. Valla set this religious Latinity above that of the Holy Roman Empire, whose political lineage was ostensibly traced back to ancient Rome, but whose bureaucratic Latin was for him inferior to that of the Church. In the 15th century, the city-states of Italy were at odds with the German imperial troops, whose “barbarian” roots and Latin were cited as evidence of their subaltern status. As a result, the Latin of the humanists came to function as not just a marker of social status, but also of political lines. It “carried a clear political

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441 See Quintilian, *Institutio Oratoria* 2.4.18-19; Aristotle, *Rhetoric* 1401b4 and *Prior Analytics* 1.28.


444 Jensen 1996: 64.
message of Italian cultural supremacy over the rest of Europe—despite the political realities.”

This was the humanist context into which Otto Brunfels anxiously stepped, a German interloper in affairs from which his idols, the Italian humanists Ermolao Barbaro and Niccolò Leoniceno, would have excluded him.

In a variant of the epistemic, allelopoietic angle taken in this project, Nutton (1997) made a similar argument regarding the approaches of historians of medical humanism. In contrast to other historians, medical humanism was more than a mere propaedeutic for the scientific revolution. The frustration of the experts in medicine and science with the markers of the Middle Ages, such as scribal errors and emendations, and “therapies misjudged and misapplied”, took the form of an affirmation of scientific truth. The frenetic and furious pace of the 15th-century humanistic enterprise culminated in the year 1490, when there was a final departure from the Middle Ages.

This overt declaration marked a turning point for the publication of medical and scientific works: the birth of modern science and medicine, during which these two fields choose to locate external authority in empirical observation rather than in the textual tradition. At the same time, science and medicine look to the future in the hope of mastery, as opposed to the

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447 Nutton 1997: 2. Specifically, she says, “when the humanist demand for a break with the Middle Ages was first announced in print.” Nutton does not specify which text this is, but it is likely a document written at the University of Pisa, in which the term umanista was first used in the vernacular. See Campana, A. 1946. “The Origin of the Word ‘Humanist’.” Journal of the Warburg and Courtauld Institutes 9: 60-73. He cites this newly discovered document in a footnote on page 68. Cf. Kristeller, P.O. 1944-45. "Humanism and Scholasticism Renaissance." Byzantion, XVII: 346-374. See also Fabroni, A. 1778. Vitae Italorum Doctrina Excellentium qui Saeculis XVII. et XVIII. Floruerunt I: 369 for a reproduction.
paradigms of the past and of antiquity. However, as Nutton points out, there was a context to these events and to these specific dates that was political, economic, religious, social, and often ignored by historians. These early Renaissance medical texts are viewed as mere historical warning signs, props for a much larger transition to the scientific revolution. For this reason, Walter Pagel (1977) thought that the importance of medical humanistic texts had devolved by 1550, having fulfilled their function and having paved the way for bigger and better things.

But to treat the texts published between 1490 and 1550 as mere propaedeutics, rather than worthy of study in their right, is “ungracious, some might claim unjust.”

Nutton therefore acknowledges that the literary events of the 15th and 16th centuries did not exist in a vacuum, but were embedded in a variety of contexts. They were both the product and the impetus alike. Moreover, Nutton takes issue with the idea that these medical works looked forward as opposed to backwards, that they created their own sense of authority rather than relying on that of their predecessors. Nutton’s argument is that they do both and neither at the same time, and that they are worthy of study in and of themselves, in their precise context. Otto Brunfels’ project, first published in 1530, therefore makes for an ideal case study for testing this proposition. Brunfels makes heavy use of both ancient sources and the 15th-century Italian

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448 Nutton 1997: 2. Modern science “passes from medieval to modern, from the authority of the book to the authority of observation, from a backward-looking search for ancient and classical precedent to a forward-looking expectation of the triumph of the new science.”


450 That is, between Nutton’s terminus (in) quo of the Middle Ages and Pagel’s terminus for medical humanism.

451 Nutton 1997: 3.
humanists. Likewise, he expresses anxiety over his own ability to contribute to the scholarly
discourse on plant identification and medicinal uses, and frets over the ways in which the
medieval herbal tradition has corrupted the ancient authorities. In this chapter, I will therefore
investigate not only the minutiae of Brunfels’s “botanical” Latin, but will also consider the
proposition that Brunfels, like Nutton’s medical humanists, must be understood in context, in
loco suo. Brunfels was not simply looking backwards, borrowing from earlier authorities. He
was in fact, although it was not the primary purpose of his herbal, involved in the birth of a
formal Latinity whose focus and subject matter was plants. Lorenzo Valla’s trendsetting
dismissal of the skills of non-Italians some hundred years prior also provides a useful
intellectual, social, and political context for Brunfels’ anxiety. The rhetoric of self-deprecation
that Brunfels employs, in which he insists that he is neither learned nor skilled enough to
contribute anything substantive to the study of herbs, is more than just a trope. Brunfels’
misgivings are very real, and both dictate the structure of and inform the Latin of his herbal. In
addition, I argue that Brunfels’ Latinity is liminal. Like Nutton, I do not see Brunfels’s work as
just a stepping stone on the way to 20th-century formal botanical Latin. Rather, Brunfels’ Latin is
transitional and hesitant, but also highly influential and transformative, the product of his desire
to identify and describe all of the known medicinal herbs in Germany and his frustration at not
being able to borrow the language and vocabulary of external authorities in order to do so.

4.1 Brunfels on Pliny and Plinian Reception: The Reference Sphere

As a case study based on the methodology of allelopoesis, Brunfels’ herbal is embedded in a
reception sphere in which it interacts with Pliny’s text, and then reconstructs and transforms it
into something new. Brunfels’ remarks about his authoritative sources function as data points for
fleshing out the reciprocal relationship between the herbal and its sources. It is therefore crucial
to examine the manner in which Brunfels both discusses Pliny *et alios* as authorities, and places himself in the role of an anxious disciple. Brunfels employs a rhetoric of uneasy reluctance throughout the herbal, which, while a trope, is also indicative of his feelings of inferiority to the authorities on whom he relies. For example, he uses the rhetoric and terminology of religion when he discusses Pliny the Elder, whom he considers the primary herbal authority. In contrast, he expresses frustration with the *Pandectae* ⁴⁵² and with Simon Ianuens, two earlier medieval medical authorities.⁴⁵³ At the same time, he quotes liberally from Ermolao Barbaro, Niccolò Leoniceno, and Pandolfo Collenuccio, all of whom had published works in the last decade of the 15th century that dealt with errors in Pliny’s text. It is clear, then, that Brunfels’ issue is primarily with those who have contributed to the corruption of Pliny’s text, whether via the herbal tradition or via poorly edited printed editions. Despite these issues with the transmission of Pliny’s text, Brunfels takes from it certain markers of what we might call classical botanical Latinity:

a) Genuine concern over issues of nomenclature;
b) The language of reverence;
c) The promotion of what were known in the herbal tradition as “simples”, over compounds; and
d) A focus on empirical observation.⁴⁵⁴

⁴⁵² He refers to the author of this text as “Pandectarius”.

⁴⁵³ Brunfels is referring to the *Pandectarum Medicinae*, or *Pandectae Medicinae*, published circa 1317 by Matthaeus Silvaticus. See 15th-c. editions at https://www.digitale-sammlungen.de/index.html?suchbegriff=Matthaeus+Silvaticus&c=suchen. Silvaticus used as a partial reference for his encyclopedia the *Synonyma Medicinae* of Simon Ianuensis, which predates the *Pandectarum* by a few decades, and is more of a dictionary listing medicinal preparations. Digital edition: https://books.google.com/books?id=7s28XX0mqAUC&printsec=frontcover#v=onepage&q&f=false.

⁴⁵⁴ These are all discussed in Chapter 1, in relation to Pliny, *HN* 25.
In this first section, therefore, we will take a look at how Brunfels interacts with Pliny as an authority. We will also examine how he interacts with Pliny’s text, which he would have accessed via available printed editions, and with the 15th-century emenders of the *Historia Naturalis*. In the following section, we will look at how Brunfels transforms these elements of the reference sphere via his original botanical Latin entries.

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In the course of their work, Brunfels and Hans Weiditz, the woodcut artist he employed, encountered an unforeseen problem. The original plan had been to simply track down plants known to Germans, which grew or were propagated in Germany, and to catalog the descriptions of these plants as found in the authorities. However, as their work proceeded, Weiditz, who was out in the field, encountered a number of plants that Brunfels could not find in the authors on whom he relied. Moreover, Brunfels’ method was to include and compile plants in the order in which he received the specimens and illustrations from Weiditz. He therefore begins the herbal with plants for which he could provide the known Latin, Greek, and German names, along with the opinions of Pliny the Elder, Dioscorides, and Galen. However, the ancients, known for their natural historical and medicinal works, were not Brunfels’ only sources.

In the preface, Brunfels makes a direct reference to 15th-century Plinian reception, specifically to Niccolò Leonceno, Ermolao Barbaro, and Pandolfo Collenuccio. In addition to his 1493 *Castigationes Plinianae*, Barbaro also authored *In Dioscoridem Corollariorum Libri Quinque*, posthumously published in 1530. Brunfels says that he frequently uses Barbaro as a

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455 See Chapter 3 for a discussion of these authors.
reference and that he owes his own extensive knowledge, his *cognitio*, to Barbaro’s works on Pliny and Dioscorides (Brunfels 1530: fol. a3r):

> Hermolai quoque Barbari Corollaria et annotationes passim adiecitmus: quod ex his folis hodie Haerbarum cognitionem existimamus petendam.  

I have also at times turned my attention to the *Corollaria* and annotations of Ermolao Barbaro, because at this point, I believe that my *cognitio* about herbs must be found in his pages. However, Barbaro is not the only person with relevant expertise. Whenever it was necessary to consult other sources, Brunfels would look to Niccolò Leoniceno, the “greatest and foremost doctor in this day and age”, and to the counselor of law Pandolfo Collenuccio, whom he describes as so learned in plant lore that the whole crowd of medics that came after him have come to metaphorical blows in their efforts to surpass him. Brunfels is fond of this boxing imagery (*mutuis sese ictibus collidentes, velutique in duello et harena pugnantes*), also calling Leoniceno and Collenuccio *duos fortissimos pugiles*. He paints a vivid picture of a boxing

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456 All Latin quotations from Brunfels are reproduced *verbatim et spellatim*. Brunfels often spells *herbarius* as *haerbarius* and *herba* as *haerba*.

457 It is worth pointing out that Barbaro was also, like Brunfels himself, not a botanist. Neither was he a physician. Thus, his expertise is with regard to the recension and transmission of Pliny’s text: he uses *recensio ope ingenii sui* and *recensio ope codicum* both.

458 *alterum summum ac primum hac nostra tempestate medicum*.

459 *qui ita tamen in haerbis versatus sit, ut multis parasangis, quod dicitur, totum hodie medicorum vulgus post se reliquerit, mutuis sese ictibus collidentes, velutique in duello et harena pugnantes*.

460 Brunfels does also cite other authorities in his preface, to whom he owes much, including D[octus] Iacobus Sturmius, D[octus] Nicolaus Knyebius, and D[octus] Iacobus Meyerus, all of whom he calls *imprimis antistites nostri* (“our foremost experts”). The latter two he refers to as *viri longe spectatissimi*, to whom, had he not acknowledged the weight of his own less than fertile work, he should have been ungrateful, *quibus si pensum operae nostrae subfecedundiae non reddidissemus, ingrati essemus* (Brunfels 1530: 17).
arena in which the big names of Italian 15th-century Plinian reception are engaged in a brutal fight over such issues as nomenclature, the transcription of Greek into Latin, and proper textual emendation, all of which have consequences for Brunfels’ own ability to do his job well.

Brunfels ends the paragraph in which he explains these primary sources with one word: *commisimus* (“I have commenced”). Thus, it was in these circumstances, in the middle of a philological, humanistic fray that Brunfels began his work, for which he provides two rationales. First, he claims that the herbal tradition, which had long provided concise assistance to medics, had by his own time collapsed. Second, in the absence of readily accessible, reliable herbals, Brunfels sees it as his public duty to fill the void and to bring to the light of day and to public knowledge crucial information that has been lost (Brunfels 1530: 17):

Caeterum de Haerbarii nostri ratione, hoc velut in compendio habetote. Primum nihil aliud nos spectasse, in toto hoc opere, quam ut publico omnium bono, Haerbariae iamiam collapsae, porrigeremus subsidiarias manus, eamque prope extinctam, in lucem revocaremus.

As for the rest, concerning the reason for my Herbal, you can find it here just as in a compendium. In the first place, I have aimed for nothing in this work other than this: that for the public good of all people, now that (the tradition of) herbals has collapsed, I might extend a helpful hand and call back into the light that which has nearly died off.

This appeal to the common good is not unexpected, given that Brunfels cites men who are learned in the art of medicine: herbs have well-known medicinal properties. What is remarkable about this *ratio* is that Brunfels identifies a need based on the collapse of what he calls *haerbariae* (*sic*), and, with false modesty, indicates his intention to fill it by means of his own “inferior hands”. This use of the imperfect subjunctive implies a wish, a possibility, and a hope that he can take up where these *haerbariae* left off. But he resolutely refuses to declare this a given effect. This is all the more remarkable because Brunfels uses vocabulary that is clearly humanistic: the adjectives *collapsus* and *extinctus* evoke death, while the verb *revoco* implies
rebirth and renewal. The confidence implied by literally reviving the herbal tradition, contrasted with the incompleteness suggested by the verb’s tense and mood, creates a tension that is evident throughout the herbal any time Brunfels is writing in his own Latin, rather than quoting or summarizing the authorities.

A further peculiarity lies in the gender of the thing on which he hopes to shine light: *eam.* There is little in the term’s immediate surroundings to indicate its antecedent. I have provided a missing possible *traditio* to accompany the “collapsed” *haerbariae* [sic]. If such an addition is valid, then the medieval, or even the classical, herbal tradition might be taken as the thing that Brunfels intends to drag back into the light of day. However, *eam* could also refer to the herbal itself, along with its subject, the humble *herba.* This latter option supports the argument that for the early botanists, the medieval herbals had been a *source* of anxiety, thanks to their many errors, their incompleteness, their lack of an appeal to authority, and their anonymity. This anxiety has a parallel in the debates about Pliny’s text: if the manuscripts and printed editions are error-ridden and incomplete, then the information in them becomes questionable and uncertain. Brunfels is both genuinely expressing and exploiting this anxiety, thanks to which he intends to restore the modest herb itself as an object worthy of inquiry. Either one of these options is compatible with the crucial point, which is that there is a parallel between Brunfels’ proposed revival of the study of herbs and the devolution of the Latinity both of herbals and of European literature more broadly. For Brunfels, the humble herb has lost its prestige, which is due in part to the carelessness of the herbalists themselves. Not only did they make critical errors, but their

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461 Interestingly, however, despite the thematic import of this terminology, none of these terms appear in Rizzo’s *Lessico filologico degli umanisti* (1973). Thus, while Brunfels is deliberately evoking Renaissance philology, he is using his own vocabulary to do so.
Latinity had become by the 15th century incredibly simplistic and of poor quality. For example, a 13th-century herbal states the following of the herb Betonica (fol. 13v):\[462\\]

> Herba betonica viride bene consticta in mortario et supposita mirum sanabit.

The herb *Betonica*, if ground up in a mortar while still green and given as a suppository, will heal marvelously.

This is a typical construction: a simple future verb accompanied by attributive past participles that modify the subject of the verb, which is the herb in question. This general structure, in which the participles point to some method of gathering, treating, and preparing an herb, which then is supposed to result in the healing action of the verb, is so ubiquitous that it could be said to be incantatory in the same way that religious rites are. A later herbal from 1484, the *Herbarius Moguntinus*,\[463\] is more sophisticated syntactically, but betrays the same formulaic tendency (*HM* fol. xxvr):

> Betonica est calida et sicca in [terciobus] virtutem abstergendi et incidendi grossos humores ideo valet ad frangendum lapidem renum et vesice et provocat menstrua. Et valet in doloribus lateribus.\[464\\]

*Betonica* is readily available, and when dried in [thirds] has the virtue of dispelling and eliminating excessive fluid; and for this reason, it is useful for breaking up kidney and bladder stones and it stimulates the menses. It also is beneficial for pain in the flanks.

Apart from the provision of the plant’s German name, and apart from an accompanying woodcut, which is quite basic, no identifying information is provided. Rather, the text immediately launches into a catalog of the herb’s medicinal properties. The Latin has a simplistic, repetitive

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\[464\] Like in Brunfels, the German names are also provided, in this case, *Bethonich*. 
feel to it, despite the presence of gerunds, participles, and ablatives. However, despite Brunfels’ complaints about the herbal tradition, this entry shows that the herbal lexicon had clearly already changed, with the inclusion of more technical vocabulary. This is a crucial development, as it shows that by the late 15th century, after the philological work of the Italian humanists, the importance of overall precision had made its mark even on the herbalists, who expressed their growing concern for exactness in a new and expanded lexicon.\textsuperscript{465} Likewise, in Rizzo’s \textit{Lessico filologico degli umanisti} (1973), although a great many terms are discussed that involve Pliny and the Italian humanists, including those that emended or collated his works, there is no discussion or comparison of classical versus humanistic uses of, e.g., the verb \textit{sano}, or of the terms \textit{herba}, \textit{herbarius}, \textit{botanica}, \textit{radix}, \textit{flos}, etc. On the other hand, there is significant coverage of terms such as \textit{emendo} and \textit{textus}, which I discuss in the previous chapters. Rizzo notes that her own work purports to assist in understanding the technical terms used in the philological activities of the humanists.\textsuperscript{466} Thus, while the Italian humanists were concerned with stabilizing Pliny’s text, they were not so concerned with the precision of the Latin of its contents. Nomenclature and botanical terminology were not of concern to them. Yet if a “study of words is also a study of things”,\textsuperscript{467} then the words we use are an indication of the things about which we care.

\textsuperscript{465} It is important to note that the author of this herbal does not cite any of the standard medieval herbalists for this particular entry, although they do for other herbs.

\textsuperscript{466} Rizzo 1973: ix. \textit{La presente ricerca è nata con lo scopo di fornire agli studiosi di filologia classica uno strumento che, nell’assoluta mancanza di lessici particolari o generali, permetta d’intendere con sufficiente precisione la terminologia tecnico-filologica degli umanisti.}

\textsuperscript{467} Rizzo 1973: x. \textit{Uno studio di parole è anche necessariamente studio di cose.}
The association of herbals and herbs with a loss of quality had real implications beyond philology. Leonhard Fuchs would in 1542 lament the fact that in his time, knowledge of herbs and their medicinal uses was confined to superstitious, uneducated women.\textsuperscript{468} The long association of herbals with the non-scholarly community underlined the need for establishing a more “respectable” milieu for the study of plant material. Thus, in the Praefatio to his Encomium Medicinae (De Utilitate et Praestantia Herbarum, et Simplicis Medicinae), Brunfels again takes up the theme of restoring the study of herbs to its former glory, but is careful to position himself as a mere compiler and consumer of more qualified authorities. He declares that he wants to respect the Hippocratic oath to do no harm and to not lead others astray.\textsuperscript{469} However, he does not see himself as equal to the many learned medics whose expertise he needs in order to effectively critique the established authoritative texts. Even if he were able to engage in such a critique, he would not have the authority or duty to do so (\textit{nec si queam, debeam}). As a humble physician, however, he does think that he is qualified to compile a book of herbs, and in so doing, recall his peers’ attention to the value of knowledge of plants (\textit{herbas rursum in usum et cognitionem revocare}).\textsuperscript{470} The use and knowledge of herbs are therefore Brunfels’ main goals in writing his

\textsuperscript{468} \textit{hoc studium indagandarum stirpium non admodum respicere, cum nostrae aetatis etiam medici sic ab eo abhorreant ut inter centum vix unum qui pauculas saltem herbas exacte cognitas habeat, reperire liceat...hinc est quod totam hanc curam in pharmacopolas, indoctum mehercule magna ex parte hominum genus et in stultas mireque superstitiones mulierculas reiiciant...}(fol. 3v)

\textsuperscript{469} \textit{Atqui nihil tale molior, ita me omnes Musae bene ament, perque illud sacrosanctum iusiurandum Hippocratis, neque alienius unquam crimen aliquod a me fuit.} (Brunfels 1530: 1).

\textsuperscript{470} Brunfels 1530: 1.
herbal. Yet botany as a science is unconcerned with the practical uses of plants. Brunfels’ project is therefore liminal, with stated purposes that are both practical and theoretical. The evolutionary nature of the text is evident not just in Brunfels’ approach to herbs but in his use of binomials and in the Latin that he uses to describe plants. It is, furthermore, evident in his prodigious citation of earlier authorities. Where the herbalists had frequently gone rogue on nature’s productions, either making potentially deadly mistakes or outright making things up, and where later botanists relied on their own observations of plant life, Brunfels in turn relies heavily on the consensus of his predecessors, as though he is sure enough of his own skills to identify the need for a more modern herbal revival and a renewed interest in the uses of herbs, but is not confident enough to take on the full responsibility. Herbs can, after all, be deadly.

Thus, in the Encomium Brunfels says that he has now come at length to the opinions of his sources (authorum axiomata et gnomas) and that in his own words one can perhaps find some degree of reliability, or faith (ut maior verbis nostris fides habeatur). He hopes that modern medics will have respect (reverentia) for Pliny, Theophrastus, Hippocrates, and Galen, and will thereby resolve the problems that arise from the abuses of the pharmacists. He calls Pliny the “father of antiquity” (ille omnis antiquitatis parens est), and exhorts everyone to take up his

471 On page 135, Brunfels describes his sources for the plant Narcissus, Theophrastus and Dioscorides, as men who have themselves learned from experience rather than from books: qui non ex libris sapiebant, sed experientia rerum edocti erant.

472 Indeed, Brunfels indulges in the somewhat novel practice of providing an index of his ancient and contemporary sources, helpfully titled Autores Quorum Testimonii in Hoc Opere Usu Sumus.

473 See Chapter 3 for a discussion about whether or not Pliny mistook the Greek word κίσθος (rock-rose) for κισσός (ivy).

474 Brunfels 1530: 8.
auspices (auspicia sumemus). The language in this passage goes well beyond the expected language of professional deference. Its primary feature is the language of religion and divinity: fides, sacer, reverentia, auspices. In contrast, Leonhard Fuchs, who is often considered the first “real” botanist, acknowledges Pliny’s impact in far more toned-down language. Fuchs appears to extol only the fact that Pliny’s work was well known and the breadth of his knowledge (Fuchs 1542: a4r):

Omitto etiam Plinium Secundum, divini illius operis De Mundi Historia autorem, quem omnes plurimum operae non solum in hoc cognoscendarum stirpium, verumetiam multarum aliarum rerum studio posuisse, ac tandem mortem oppetiisse sciant. Quam varias autem terrae regiones ut medicam materiam exacte cognosceret, vitamque mortalium iuvaret, Galenus lustraverit, nemo qui libros eius paulo diligentius legit, ignorare potest.

I leave out Pliny, the author of that illustrious work, Concerning the History of the World, whom everyone knows focused most of the work not only on dedication to plants that need recognition, but also on the study of many other things, and finally met with death. No one who reads Galen’s books diligently could deny how he illuminated the varied regions of the earth so that he could know so exactly the material of medicine, and assist the lives of mortals.

Fuchs acknowledges the impact of Pliny’s work, but it is to Galen that he attributes the action of “shedding light”. Moreover, it is heavily implied that this impact is watered down by the encyclopedic nature of Pliny’s text. Yet for Brunfels, Pliny is the object of near-religious fervor, in part because Pliny recommends simple herbal remedies over complex mixtures. For Brunfels, the promulgation of these concoctions by the pharmacists, apothecaries, and misguided medics of his day constitutes a fraud on everyday people, who can find “simples” for free in their gardens. Brunfels provides a lengthy quote from Book 24 of the Historia Naturalis to support his argument that herbs are de facto readily available, that there is no need for fancy concoctions from abroad. Pliny claims that simple herbs were the only things that nature had seen fit to

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475 Brunfels 1530: 8.
provide to all and sundry as remedies, being easily found, free, and part and parcel of daily life

(\textit{haec sola naturae placuit esse remedia parata, vulgo inventu facilia, ac sine impendio, ex quibus vivimus}).\footnote{Brunfels 1530: 8. From Pliny 24.1.4: \textit{haec sola naturae placuerat esse remedia parata vulgo, inventu facilia ac sine impendio et quibus vivimus. postea fraudes hominum et ingeniorum capturae officinas invenere istas in quibus sua cuique homini venalis promittitur vita.}} In fact, the pharmacists’ frauds were about to be exposed when the apothecaries came along, promising health via complex concoctions instead of simple herbs

(Brunfels 1530: 8; Pliny \textit{HN} 24.1.4):\footnote{This is Brunfels’ quotation of Pliny. There are a couple of words missing: It should read …\textit{in quibus sua cuique [hominis venalis] promittitur vita}…}

\begin{quote}
Postea fraudes hominum, et ingeniorum capturae, invenere officinas istas, in quibus sua cuique promittitur vita: statim mixturae et compositiones inexplicabiles decantantur.
\end{quote}

Later on, the deceits of men, and their inevitable gains born from ingenuity, led to the founding of those deplorable workshops, in which, to each man his own life is promised for a price. At once, mixtures and mysterious compounds are reeled off.

Because of the complexity of these remedies, it became necessary to seek out ingredients from abroad, from Arabia and India, which Pliny sees as a travesty, since any poor individual can simply look in their kitchen garden for an herbal remedy that requires no skill to prepare

(Brunfels 1530: 8; Pliny \textit{HN} 24.1.5):

\begin{quote}
Arabia atque India in medio aestimantur, ulcerique parvo, medicina a rubro mari importatur: cum remedia vera, quotidie pauperrimus quisque coenet. Nam si ex horto aut petatur herba, vel frutex quaeratur, nulla artium utilior fiet.\footnote{There are slight differences in Brunfels’ citation with other editions, such as the Loeb: \textit{Arabia atque India remedia aestimantur, ulcerique parvo medicina a Rubro mari inputatur, cum remedia vera cotidie pauperrimus quisque cenet. nam si ex horto petatur, aut herba vel frutex quaeratur, nulla artium \textit{vilior} fiat}. Here, Arabia and India are thought of in terms of remedies.}
\end{quote}

Arabia and India are thought of as middlemen, and for a small ulcer, medicine is imported from the Red Sea, even though any man, even the poorest, dines on true remedies on a daily basis. For if an herb should be sought in the garden, or a shrub be looked for there, then no skill will become more advantageous.
The skills of medics are no match for the effective simplicity of the common garden herb, and Pliny’s own sources being closer to home than Arabia and India, his remedies are more naturally pleasing.\(^{479}\)

Pliny and Brunfels are both reduced to fretting over the lost wisdom of the ancients and the deleterious effects of a more modern concept of “skill”. The concoctions sought from abroad are overkill, since garden herbs would suffice, but more than that, they are dangerous because they are unfamiliar and their ingredients are unknown, which is why Pliny refers to them as compositiones inexplicabiles. Relying on religious terminology, Pliny laments that by seeking greatness, “we” have been conquered. “We” have lost the “rites” of the ancients, and are now ruled by our own skills (magnitudo porro perdidit ritus, vincendoque victi sumus. Paremus externis, et una artium Imperatoribus quoque imperat).\(^{480}\) Brunfels’ appropriation of Pliny’s words to express these concerns therefore marks a first transformative process within his reception sphere. Brunfels appears to enumerate the same frustrations as Pliny, but in fact there is a crucial difference in the substance of their complaint. Pliny’s words constitute rhetorical asides easily overlooked in the sheer magnitude of the Historia Naturalis. His arguments for the value of cognitio about medicinal plants are important, but they are hardly the main focus of the work as a whole. Brunfels has the intervening 1500 years of the herbal tradition with which to

\(^{479}\) It is unsurprising that Brunfels would rely on Pliny’s own words to editorialize about “simples” and the virtues of homegrown, native herbs. What is interesting, especially given the content of Chapter 3 of this dissertation, in which the 15\(^{\text{th}}\)-century emendations of printed editions of Pliny are examined, is the fact that the Plinian quotations provided by Brunfels differ slightly from modern editions.

contend. Where Pliny laments what has been lost, Brunfels agonizes over what has been corrupted. Pliny’s thoughts on these matters create clamor in Brunfels’ mind: distrust of medicines prepared with plants that are not found at home and are therefore not empirically verifiable; reverence towards the ancients; frustration on being confronted with new plants at home.

All of these find a voice in the conclusion to Brunfels’ Encomium, where in his own words, without quoting Pliny, he warns about the dangers of knowledge about plants being concentrated in the hands of the few (ne inter paucos esset illarum peritia et cognitio).\textsuperscript{481} He reiterates his desire to recall practical uses of plants (rursum in usum revocemus) and to reinstate an uncorrupted form of the ancient texts he reveres (antiquitatem et sarta tecta, quod tecta, instauremus, collapsaeque herbariae medicinae manum ut porrigamus).\textsuperscript{482} Brunfels would not have anything to say were it not for the work already done by the ancients. The only substantive contribution Brunfels can claim is the fact that he is bringing what the ancients said back to the attention of those in the 16th century. He uses the metaphor of patching the collapsed roofs of the original herbalists, with the intention of informing his colleagues about the medicinal benefits to be had. But it is essential that as many people as possible have this knowledge (et quod est omnium maximum, tot etiam viribus praeditis). Thus, despite his performance of humility, Brunfels is in fact engaged in an allelopoietic, transformative process, involving not only Pliny, but all of the botanical authorities who came before him. By collating their writings on each of the herbs, as well as the opinions of Pliny’s emenders, Brunfels is tackling head-on the confused muddle resulting from the herbal tradition. He is verifying what is correct, settling name

\textsuperscript{481} Brunfels 1530: 17.

\textsuperscript{482} Brunfels 1530: 17-18.
disputes, and ensuring, most importantly, that the consumers of his herbal will not make any fatal or harmful errors.

The medieval herbal tradition is one of the key catalysts for this transformation. Brunfels claims that his audience, those whom he hopes will take guidance and inspiration from his work, includes the secular and neoteric medics (seculi et neoterici Medici). The only information that is “pure” (puram voco) enough to be passed down is found in the ancients. Medical practitioners will therefore learn better to be good at their job (discent inde salubrius ac praesentius mederi) by referring to these authorities than by looking abroad (barbaros detestabunt). Their own writings are nothing more than robbery (alienum furtum) and loan words (asciticia). They have lost the splendor of the ancients and developed a way with words that is now insipid and befouled (pristinum etiam splendorem suum amiserunt, insulsaque verborum stribiligine conspurcata). As a result, Brunfels finds it necessary to highlight the works of the true masters of the skill of plant medicine (ex magistris artis sapere). He hopes that the vice that he identifies in so many authors, medical practitioners, and other purveyors of herbal medicine will be absent in his own work (Brunfels 1530: 18):

Absit autem, quod hominum vicium, in artis calumniam voluerimus detorquere. Cum nulla tam sancta professio sit, quae non alat monstra sua.

Moreover, let that vice of men not be present, the one that I wished to turn against the artifice of skill. Although, there is no profession so sacrosanct that it does not foster its own horrors.

483 The other is the printing history of Pliny.

484 Brunfels 1530: 18.

485 quicquid in universum iactant hodie omnes barbarorum scholae: quae praeterquam quod asciticia et alienum furtum sunt.

486 Brunfels 1530: 18.

487 Brunfels 1530: 18.
This is typical of Brunfels’ self-deprecation, in which he expresses the hope that he can avoid the pitfalls of his predecessors, but is unsure of his ability to do so. He relies on the present subjunctive \textit{absit}, where another author would have blithely used an indicative or the imperative. Brunfels’ performative pessimism and self-doubt are perfectly summed up in his doubt that there is any profession that can be called sanctified that does not feed his, and others’, worst attributes.

Brunfels’ entry for the herb \textit{Personata} is an excellent example of the application of his theories and methods.\footnote{Barbaro 1530: 42ff.} He cites Pliny 25.58, who explains that the plant known in Latin as \textit{Personata} is called \textit{Arction} by the Greeks (\textit{quidem Arcion Personatam vocant}). However, there is confusion surrounding both the Greek and Latin names. \textit{Arcion} is written in some printed editions and manuscripts as \textit{Arction}, or even as \textit{Echion}, which Ermolao Barbaro discusses in his \textit{Corollaria}.\footnote{This is Barbaro’s posthumous 1530 \textit{In Dioscoridem Corollariorum Libri Quinque}.} Barbaro argues not only that \textit{Arction} and \textit{Echion} are different plants, but that \textit{Arction} and \textit{Arcion} are also taken as different in Dioscorides, whereas Galen sees no difference between them. Barbaro also decides that where Pliny uses \textit{Personata}, he in fact means the plant called \textit{Petasite}. To add to this tumult, \textit{Arction} is also known in Latin as either \textit{Persoluta}, \textit{Bardana}, or \textit{Lappa maior}.\footnote{See Chapter 3 for a detailed account of Collenuccio’s defense of Pliny regarding this plant, and the intricacies of its nomenclature.} Brunfels’ inclusion in his own herbal of this debate surrounding \textit{Personata}, and whether or not Pliny mistook it for another plant, serves as a useful reference for the reader who is interested in the plant’s nomenclature. But the issue is incredibly confusing, and given the primarily medical purpose of the herbal, it is unclear why any of his readers would need to be privy to the complexity of the debate. Brunfels betrays a more sophisticated motive
than the publication of a medical herbal by cross-referencing with one another the 15th-century Italian humanist criticisms of Pliny’s take on Personata. Three issues surrounding the identification of Personata arise from these entries:

a) It was debated what name Pliny himself used, as opposed to later scribal emendations.

b) The confusion regarding the Greek and Latin names led to further confusion as to which plant Pliny claimed had two types.

c) Pliny was blamed by the humanists for reporting what others thought.

For Brunfels, any responsible discussion of the plant Personata must include these debates. By laying all of this out, he himself sidesteps the same accusation leveled at Pliny, specifically, of irresponsible reporting. In addition, it is plausible that any reader of Brunfels’ herbal also had access to Pliny’s text, as well as, perhaps, to Galen, Dioscorides, and Theophrastus. If, as Brunfels hoped, his herbal became widely popular, his readers could avoid the danger of mistaking one herb (Echion) with another (Arction/Personata/Lappa maior), and therefore potentially harm their patients.

Ultimately, Brunfels approves of Barbaro’s take on the situation, and of Collenuccio’s (facit nobiscum Barbarus, et ipse acerrimi homo iudicii. De Plinio certe Collinucius viderit), and Pliny is reestablished as trustworthy.491 When he says Echion, he means Echion, not Arction, whatever errant manuscripts and editions might say. Brunfels’ insertion of his own view, not only on the nomenclature and identifying features of the herb Personata, but on the fierce debate surrounding it, is singular even within his herbal. There are other cases of herbs regarding which Barbaro and Leoniceno take issue with Pliny and for which Collenuccio takes up the defense,

491 Brunfels 1530: 45.
e.g., the herb *Betonica*,\(^{492}\) but into which debate Brunfels refrains from inserting himself. In this case, the sheer confusion of the nomenclature and the question of the number of types of *Personata*, combined with the possibility of misidentification and misuse in medicinal concoctions as described by well-known medical authorities, are all sufficient to goad Brunfels into the expression of an actual opinion.

As his entry on *Personata* demonstrates, Brunfels has been misunderstood in the history of botany. He is not simply reiterating the opinions of ancient and Renaissance authorities with respect to the herb. He is actively engaged in the transformative process of supplementation, a subcategory of reconstruction. Kallendorf (2020) explains reconstructions as attempts to recover the authentic version of a component of a reference sphere that has either been lost or only partially preserved,\(^{493}\) for example, the ur-text from which all of the Plinian manuscripts and printed editions would have been derived. In a standard reconstruction, there is no attempt to interpret the thing recovered, whereas in a supplementation, there is room for interpretation. Supplementation fits with Brunfels’ project, because he is trying to resolve the issue of how to properly identify *Personata*, and to resolve the debate about its proper nomenclature. However, the effect of his attempt at supplementing the jumble of authoritative sources is also what Kallendorf calls an appropriation. This is a subtype of Inclusion, itself one of the three main

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\(^{492}\) See Brunfels 1530: 89ff.

\(^{493}\) Kallendorf 2020: 8.
categories of allelopoiesis. An appropriation “detaches a reference object from its original context and incorporates it, largely preserved, into the reception sphere.” Brunfels does not significantly alter any of the authorities whom he cites. Rather, he gathers together lengthy quotations and places them in one another’s immediate surroundings, in a particular entry. This action functions as a very particular form of commentary: Brunfels presents any input on his part as inadvertent and unintentional, whether or not that is actually the case.

4.2 Brunfels’ Latin: Transforming the Reference Sphere

One of the aims of this chapter is to show merit in Brunfels’ work, beyond Hans Weiditz’ realistic illustrations, which have long been the only traditional object of any praise directed towards it. In fact, the Latinity of Brunfels’ herbal is just as valuable for understanding the

494 Allelopoiesis consists of three primary kinds of transformation: Inclusion, Exclusion, and Recombination. There are no less than 14 further categories subsumed under these, the sheer number of which is daunting. Kallendorf (2020: 6) helpfully provides Virgilian, Renaissance-era examples of each. Thus, to illustrate what is meant by appropriation, he cites humanist commentaries of classical texts. In the 15th century, five commentary folio editions of Virgil’s poetry were published, two of which (Servius and Donatus) were from late antiquity. The other three (Antonio Mancinelli, Domizio Calderini, and Cristoforo Landino) were contemporary. “The two commentaries that came from late antiquity transpose Virgil, respectively, into a model of grammar and rhetoric, while the three humanist commentators imposed on the text they were annotating their own interests and ideas, ranging from correct linguistic usage to Florentine Neoplatonism.”


496 Somewhat disconcertingly, Linnaeus himself argued against the use of illustrations in botany, stating that they were only useful for children and idiots: *Icones prodeterminandis generibus non commend* *o, sed absolute reicio, licet fatear has magis gratas esse pueris, iisque qui plus habent capitis quam cerebri; fateor has idiotis aliquid imponere. (GP Ratio Operis XIII 1743: viii).* One aspect of the dialogue about the usefulness of botanical illustrations that is not often discussed is the fact that illustrations and images with scientific value are generally artless. Karen Reeds (2006: 208) discusses the 15th- and 16th-century phenomenon of the nature print (a print made from the specimen itself, much like the paint + leaf combination popular in elementary art classes) and its lack of representation in scholarship on illustrations. “In part, it is because the process is literally so artless. Making a nature print is child’s play.”
early development of botanical Latin as are its woodcuts for the development of scientific illustrations. Brunfels’ Latin is liminal, caught between the publishers, editors, and emenders of Pliny’s *Historia Naturalis*, and the first botanists, who did away with descriptions of the medicinal value of plants in favor of strictly physical descriptions, and, just as crucially, did away with debates surrounding them. Thus, the very feature of Brunfels that has drawn the most criticism from scholars of botanical history, namely, the unoriginality of his reliance on prior authors, is in fact one of its most important components. Brunfels aggregates his sources, and in so doing, paints a picture of the intellectual state of the study of plants in Western Europe. For instance, Brunfels tries to reconstruct the authoritative picture of the herb *Personata* and in the process, appropriates it into his reception sphere. This appropriation comes further into focus when we consider that in many other cases, beyond the herb *Personata*, Brunfels inserts what he calls a *Judicium Nostrum*, in which he attempts a conclusion regarding particular debates about a particular herb. These *iudicia*, together with what he calls *herbae nudaes*, plants unknown to the ancients, are significant because they are Brunfels’ reluctant transformations of the markers of Plinian botanical Latin into something more modern and more precise. While Brunfels implies that he would have been happy to simply cite his sources, circumstances were such that he was forced to strike out on his own, and in so doing, he had to resort to new ways of describing plants. In the cases of the *herbae nudaes*, this goes beyond the humility trope he employs in his prefatory remarks. Even if he were able to map the German nomenclature onto Latin names found in the medieval herbals, Brunfels would not find their entries worthy of copying. It is important to him that whatever information he includes in his own herbal is comparable to the ancients, and worthy of being set alongside them.
Čermáková and Černá (2018) have focused their research on Brunfels’ *herbae nuda*. These are the German plants included in his herbal that did not have identifiable counterparts in classical antiquity, and which therefore had to be described in original terms and vocabulary. In particular, Čermáková and Černá distinguish Brunfels’ descriptions of these *herbae nuda* from later descriptions of plants “discovered” in the New World. They rely on Ogilvie’s (2006) classification of Renaissance botanists into three distinct generations. Into the first, Ogilvie places Niccolò Leoniceno and Euricius Cordus, who were not so much concerned with scientific verification as with a straightforward mapping of European plants onto those in Pliny and Dioscorides. The second generation involved so-called phytography, in which real plants that could be found in nature and thus illustrated were mapped onto plants described in the ancients. The primary focus of this second generation was to verify the information found in the ancients. Ogilvie argues that for the second generation, their projects were based on the assumption that the ancients did not have the information needed to engage in scientific verification of their subject matter. This resulted in the development by the early botanists of a “science of describing” the natural world with extreme clarity and precision, a crucial component of which was the use of realistic illustrations. Brunfels belongs to this second generation and his *iudicia*, together with his *herbae nuda*, are therefore paramount in any analysis of the Latinity of his herbal. Čermáková and Černá argue that Brunfels’ *herbae nuda* are devoid of the

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499 The author of the *Botanologicon* (1534).
“rhetoric of wonder” that characterized descriptions by Europeans of “unknown” plants in the New World. This, I argue, is because the *herbae nudae* are well-known to Brunfels and rather than amazement, it is frustration that he expresses at having to describe them. In what follows, I will look at several *herbae nudae* and *iudicia* entries, with the intention of determining how Brunfels, the reluctant botanist, appropriates the Latinity of the authorities and simultaneously begins to transform it into an original proto-botanical Latin.

### 4.2.1 Herbae Nudae

Čermáková and Černá (2018) argue that whereas Brunfels wished to employ illustrations of unfamiliar plants in his herbal, which he calls *herbae nudae*, he was not concerned with the actual description of them.\(^{500}\) Brunfels’ thoughts on these unknown plants, which he believes are either uniquely German or at least unknown to the ancients, can be found interspersed throughout the herbal. This is in keeping with his process of describing herbs in the order in which their illustrations arrived at his desk. He therefore entitles the first formal entry for an *herba nuda*, which is called alternately *Kuchenschell, Ruchschell, or Sac[k]etfraut*, “Otho Brunnfelsius [sic]”, as if to highlight the fact that the authorities on whom he has relied for the prior section can have no say here. Rather than begin with his usual list of the known Latin, Greek, and German names, he editorializes and explains that when he began work on his herbal, the plan had been simply to include an appendix of any plants that he could not positively identify in his sources. He had meant to provide full entries only on plants for which he could map the German name to the established Greek and Latin nomenclature, which are identifiable and used medicinally in Germany. But the continued appearance of plants that did not fit these

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\(^{500}\) Čermáková and Černá 2018: 71.
criteria gave him pause and forced him to take a closer look at them, to take the opportunity they provide (Brunfels 1530: 217):

Constitueramus ab ipso statim operis nostri initio, quicquid esset huiuscemodi herbarum incognitarum, et de quarum nomenclaturis dubitaremus ad libri calcem appendere, et eas tantum sumere describendas, quae fuissent plane vulgarissimae, adeoque et officinis in usu: verum longe secus accidit, et rei ipsius periculum nos edocuit, interdum serviendum esse scenae καὶ καιρῶ λατρεύειν, quod dicitur.

I had decided from the very beginning of my work that should there be an example of this sort of unknown herb, both to include an appendix (calx) to the book, concerning the names of those which I am unsure of, and to only take on those herbs that need describing, these being the most common and also in use in the apothecaries. But it turned out far different, and has shown me the danger of the project itself, namely, that sometimes there must be devotion to the scene [the natural background] and to “render due service to opportunity”, as it is said.

The fact that Brunfels has encountered a number of German plants that he cannot map onto the ancients causes him anxiety, because he cannot refer to others as authorities. In fact, there are other herbs prior to this one, which Brunfels has also been unable to definitively identify, but it is not until the plant Kuchenschell that he has taken the time to highlight the problem. This method is alien to modern scientific publishing, demonstrating a lack of interest in pre-planned organization. The plants in Brunfels’ herbal are literally presented to the reader in the order in which the illustrator has captured and presented them to him. However, after so many unidentifiable specimens, Brunfels has suddenly lost his patience.

This loss of composure is best seen by comparison with an earlier semi-herba nuda, for which Brunfels lists the Teutonic nomenclature as either Gulden Guntzel, Brimel, or Grosse Guntzel. Likewise, the Latin nomenclature is so confused that Brunfels cannot map the common

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501 Brunfels’ use of the adjective nudus can be contrasted with Ermolao Barbaro’s, when he explains how for some of the errors in Pliny, he emends with the barest of expressions, whereas for others, he has much more to say: Nuda aliqua, et quae velut notare inter agnoscetes satis habui: Aliqua paulo pluribus verbis explicata. (Barbaro, Castigationes 1493: aiir).
names with any precision.\textsuperscript{502} Dioscorides calls it \textit{Solidago},\textsuperscript{503} but Hieronymus Haerbarius [sic] and others call it \textit{Consolida media} or \textit{Consolida minor}.\textsuperscript{504} In this example, Brunfels admits that he does not know for certain the proper name for this plant. There do appear to be Latin protobinomial names for the three known species of this plant, but because Brunfels cannot map them onto the ancients, he instead maps the varieties of flower onto the German names. Given the lack of authoritative data on the plant, Brunfels decides to simply list its medicinal properties, under the heading \textit{Vires et Iuvamenta}. He states that it heals wounds (\textit{vulnera glutinat}), dissolves blood clots (\textit{sanguinis trombos ex casu, vel contusionibus coactos in corpore disiicit, et dissoluit}), and remedies mouth ulcers (\textit{praesens remedium est alcolae, et oris ulceribus serpentibus}). Brunfels therefore relies on his own experience (\textit{vidi}) as a medical doctor to explain \textit{Consolida}'s known and alleged uses. He is, in keeping with his self-deprecatory, humble trope, only comfortable saying this much about this particular \textit{herba nuda} because it falls within the realm of medicine. As a non-botanist, Brunfels has more to say about the plant’s healing properties than its identifying characteristics. Yet, when presented later on with \textit{Kuchenschell}, Brunfels suddenly has much less to say about its medicinal uses, though he is verbose about the difficulties of identifying it. Brunfels was a physician, not a scientist and not a botanist. His concern was with healing, and the unknown was not of interest to him. This explains his frequent use of the term \textit{cognitio} to refer to his knowledge of the subject, a term borrowed from his preferred authority,

\textsuperscript{502} Brunfels 1532: 95ff. I refer to this herb as \textit{semi-nuda} because Brunfels is aware of its Latin and Greek names. The issue is that he cannot figure out which of them correspond to the plant he is describing, or to the three German names of which he is aware.

\textsuperscript{503} A genus in the \textit{Asteraceae} family, i.e., goldenrods.

\textsuperscript{504} \textit{Supra testati in Solidagine sumus, multas esse Consolidarum species, ex quibus et praesens est, quam Mediam, vel Minorem Consolidam vocant, vulgo, Gulden Guntzel, teste H I Bronymo [= Hieronymo] herbario}. 
Pliny the Elder. Yet, despite his intention of relying on the authorities, Brunfels’ project took on a life of its own (verum longe secus accidit). In the process of gathering illustrations of German plants, he found himself confronted with a stockpile of plants that could be of medical benefit, but which he could not verify by reference to any authority. The uncertainty involved in identifying these plants by name and verifying their efficacy is the impetus for his decision to make the attempt to do so. If there is any possibility that these herbae nudae can be used medicinally, then as a physician he has a duty to try to do so.

When confronted with the herb Kuchenschell, he therefore explicitly states in his side-exposition that he decided to delineate the herbae nudae with German names (statuimus igitur nudas herbas, quarum tantum nomina germanica nobis cognita sunt, praeterea nihil). He is hesitant to take up this task, but ultimately decides to include the herbae nudae because the engravers of the illustrations of more common herbs have been delayed (nam cum formarum delineatores et sculptores, vehementer nos remorarentur). In order to keep the process of writing and printing the book moving, Brunfels was forced to turn to other herbs that are readily available for description (ne interim ociose agerent et praela, coacti sumus, quamlibet proxime obviam arripere). However, he was unsuccessful at procuring their Latin names in the inventories of either the physicians or the herbalists (nam latina neque ab medicis, neque ab herbariis rimari valuimus). Brunfels’ inclusion of these herbs in his own work can therefore provide to those who are more educated about such matters, basic information about them, such

505 “I therefore set forth the ‘bare herbs’, of which only the German names are known to us and nothing more.” (Brunfels 1530: 217).

506 Brunfels 1530: 217. The verb Brunfels uses to describe this process, valeo, to be efficacious at doing something and therefore able, was also commonly used to describe the medicinal benefits of a plant.
as their habitat and uses. His decision to include the *herbae nudae* therefore amounts to passing
the responsibility of accurate description and identification over to others. Individuals who are
more skilled in botanical matters may use Brunfels’ entries to do further research and flesh out
his contributions, which consist primarily of their medicinal uses. Brunfels chooses his terms
carefully, always stressing his lack of skill in the process of exploring the works of the
authorities, a technique that is reflected in the deponent verb *rimor*, to probe or search, which
implies a tentative approach to his task. He laments how so much is missing from his sources
that he cannot even identify the herb *Kuchenschell* in Dioscorides or any other ancients (*tantum
abest, ut ex Dioscoride, vel aliqo veterum hanc quiverimus demonstrare*). Rather, his concern is
with providing an opportunity to those who are more knowledgeable than he is about such things
(*magis adeo ut locum supplerent, et occasionem praeberent doctioribus de iis deliberandi*). He
thinks that these individuals will complete his catalog (*ut catologum nostrum explerent*), which
he assumes is going to be well-known (*quem oportebat esse notissimum*). While he cannot fully
identify and describe the *herbae nudae*, he can say, from his own empirical observations, that
they might be curative (*de prima hac ab empiricis id compturn habemus, quod vulneraria sit
herba*).\(^{507}\)

Brunfels’ citation of empirical observation as the preferred method of deriving
knowledge about a plant’s medicinal properties does not wholly correspond to his satisfaction
with Hans Weiditz’ illustration of the plant. He does appear to have examined a specimen, in
order to offer a physical description of it. The truth is that Brunfels is not concerned with plants
for which there is no known medicinal use. For *Gulden Guntzel, Brimel*, and *Grosse Guntzel*,
Brunfels is at least able to discuss the possibility that they are three species of the same genus,

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\(^{507}\) Brunfels 1530: 218.
Solidago, or Consolida. However, for Kuchenschell, he has no point of reference, which causes him such consternation that he indulges in a fit of pique and provides only a short paragraph on its medicinal uses. In this case, because he cannot rely on the authorities and because he has decided to include the unknown plants whose illustrations Weiditz sends along to him, Brunfels is forced to provide all of the known information about the plant. But he stays in his comfort zone and simply lists the medicinal properties (Brunfels 1530: 218):

Secantur folia eius non sine acore quodam, ita ut oculos quemadmodum allium, aut cepe feriant. Illaque per alembicum destillata, aquam vulneribus mundificandis, curandisque utilissimam praestant, quae et putridam carnem erodant.

When the leaves of this plant, which have a certain bitterness, are removed, they sting the eyes, like allium (onion) does, or caepe (also onion). And when the leaves have been distilled in an alembic, they produce a liquid that is very useful for the cleansing and healing of wounds, and they also erode rotting flesh.

Here, Brunfels uses a technique found even in Pliny: he compares the bitterness of the leaves to onions, which are notoriously noxious. Beyond this, however, his information is not very specific. We learn only that a decoction of the leaves can be used to treat wounds and clean out gangrene. However, Kuchenschell is only the first of two herbs filed under the rubric of Otho Brunnfelsius. The second is called Gauchblüm, and while an illustration is provided, Brunfels can only be bothered to include two sentences about it (Brunfels 1530: 218):

Incognita veteribus haec herba, tametsi passim in Germania nascens. Pedicularem sunt qui velint, quod pedibus inimica, illos pellat, dum eius lixivio caput lavatur.

This herb was unknown to the ancients, although it grows all throughout Germany. There are those who are of the opinion that the pedicel, because it is injurious to the feet, affects them, provided its head is washed in lixivium.\(^{508}\)

\(^{508}\) Brunfels’ Latin is unclear in this line. The antecedent of illos can only be either qui or pedibus, but the object of pellat would seem to fit better with inimica.
Of note in each of these entries is the fact that Brunfels provides no information on how to identify either *Kuchenschell* or *Gauchblüm*, apart from their illustrations. Their medicinal properties are derived from their leaves and certain specific parts of the stem or fruit. Thus far, Brunfels keeps to the herbal tradition. However, he makes no attempt to provide Latin botanical names for the plants, nor does he employ the binomial format. His Latin is devoid of anything that resembles character. It is clear and succinct, but displays no stylistic or identifying features, as though to highlight Brunfels’ refusal to place himself in the number of *doctiores*. Despite this, the Latin is more complex than that found in the late medieval herbals. Brunfels is sophisticated enough to use *ut* clauses and gerundives, which demonstrate a certain command of the Latin language, but which are also not out of the ordinary. The sentences are straightforward, but they are just intricate enough, with just enough subordination, to distinguish the technique and style from that of the herbal tradition.

Yet this Latin, nondescript as it may seem, is of great importance in the development of what would later come to be known as botanical Latin. In this context, it does not matter whether or not Brunfels was right in assuming that the plants were truly *nudaee*. The imprecision of naming conventions since antiquity and the lack of illustrations accompanying ancient texts means, that in some cases plants that are considered by Brunfels and Fuchs *et alii* to be unknown to the ancients were in fact known under different names and descriptions. For Čermáková and Černá (2018), this is a larger issue, because the Latin used by these early botanists to describe *herbae nudaee* can also be distinguished from the Latin used to describe another group of plants unknown to the ancients: those of the New World.\(^\text{509}\) There is an identifiable style and technique

\(^{509}\) Čermáková and Černá 2018: 71.
of Latin composition for plants that were thought to be new. Moreover, in the couple of decades following Brunfels’ work, other naturalists began to focus more and more on “experience” to flesh out their botanical works, which meant traveling more and more in order to examine plants in person. Citing Findlen (1994), Čermáková and Černá attribute this turn towards experience to “the increasing importance of establishing scientific authority.” Yet this was not the impetus for Brunfels’ description of the *herbae nudae*. Rather, he decided to include them, briefly, so that others could follow up, and therefore become the authorities on them.

Fuchs did in fact identify *Gauchblüm* as *Nasturtium agreste*, or *Hiberis*. Thus, despite not wanting to position himself as an authority, Brunfels clearly has *cognitio* about herbs that Fuchs and others restate and rehash. Brunfels also has opinions about the general state of knowledge about plants. He acknowledges his debt to the ancients, but laments that their knowledge of plants had over time become garbled and incomplete (Brunfels 1530: 68):

> multam gratiam Veteribus debemus, qui Herbarum vires et nomina, primi nobis prodiderunt: multam etiam ignominiam, et perpetuam contumeliam iis, qui posterioribus seculis, mire et portentose omnia depravarunt et confuderunt.


511 Čermáková and Černá 2018: 71.

512 Indeed, many of the botanists after Brunfels took the time to devise Latin names for the new plants they encountered, although, with the modern scientific definitions of genus and species not yet claimed and with the rules of nomenclature not yet established, authors frequently resorted to simply naming a “new” species as the “first”, “second”, or “third” of a particular genus. By 1601, this practice had led to a large number of novel plant names that could be traced back to specific 16th-century authors, such that in Giovanni Pona’s *Plantae seu Simpliciae* (1601), one finds such plant names as *Echium fuchsii*, *Rhamnus tertius Matthioli*, *Scorpioides Matthioli*, etc., named after Fuchs and Matthiolus. Notably, Pona does not list any plants named after Brunfels, an indication that he got his wish.

513 See the Conclusion for more on this reclassification of *Gauchblüm*. 

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I owe a great deal to the ancients, who first provided me with medicinal uses and the names of the herbs. But I also owe a great deal of dishonor and constant criticism to those who in later centuries corrupted and confused everything in remarkable and prodigious manner.

Specifically, Brunfels blames the author of the *Pandectae* and Simon Ianuens, who, he alleges, really mixed everything up (*qui praeterque que omnia miscuerunt*). He claims that they exerted themselves more over producing huge volumes of work than in leaving anything useful or knowledgeable to posterity or investigating real knowledge of such things.\(^{514}\) The corrupting effects of these books is sufficient to number their authors among the most unscrupulous of men, whose dishonesty makes them worthy of eternal darkness (Brunfels 1530: 68):

\[
\text{si et illorum libri corrupti sunt, quod mihi verisimile non est, cum sint recentissimi, perpetuis tenebris digni essent tam perfidissimi corruptores.}
\]

If their books are corrupted, which is not a probability in my opinion, given that they are so new, then they should be as worthy of eternal darkness as the most dishonest of scam artists.

The misleading nature of these books is the reason for the “greatest of evils”, namely, that Brunfels and others know so few herbs (*inde etiam hoc malum maximum, quod tam paucas Herbas novimus*). It is also due to the poor quality of these texts that Brunfels and his contemporaries are left with a tangle of confused, obsolete, and useless names (*inde tot myriades barbarorum, obsoletorum et ineptissimorum nominum*). Brunfels is left with nothing resembling *cognitio* about ancient things, which these authors have either willfully misrepresented or at the very least, neglected (*dum et omnia illi vetera corruperunt, vel neglexerunt*). In Brunfels’ critique of the medieval herbalists, the rationale behind his own herbal becomes evident. He intends for his herbal to be a reliable compendium of accurate illustrations and sufficient,

\(^{514}\) Brunfels 1530: 68. *In hoc tamen sudasse videntur, quo modo ingentia volumina comportarent, non quam utilem operam posteris locarent, vel rerum potius cognitionem indagarent.*
consensual information from a variety of authorities. Moreover, his reliance on the emenders of Pliny’s printed editions is also explained. Ermolao Barbaro and Niccolò Leoniceno did far more than just nitpick the editing and printing of Pliny’s text in the late 15th century. They also helped to reverse the corruption of Pliny’s text in the herbal tradition throughout the centuries.

In the cases of both *Gulden Guntzel* (*Solidago or Consolida*) and *Gauchblûm*, while Brunfels is unsure of their corresponding names in Greek and Latin, he is able to indulge in some conjecture. It takes him a while to realize, as he finally does with the *Kuchenschell* entry on page 217, that a trend is emerging that he must address. Prior to this, the first *herba nuda* was found on pages 182ff, although he did not yet recognize the significance of his discussion about its nomenclature. This herb differs from the others in that Brunfels lists two species, *Perfoliata mascula* (*Durchwachß Mânlin*) and *Perfoliata foemina* (*Durchwaß [sic] Weiblin*). At this point, as he indicates, he is midway through the book, with various herbs being brought to him, in no particular order (*dum in ipso medio opere haereremus, atque nunc illae, nunc aliae nobis adferrentur herbae, citra omnem prorsus et delectum et ordinem*).515 Suddenly, an herb known as *Perfoliata*, as it is called in the apothecaries (*sic enim illum appellant officinae*), is presented to him. This herb has caused Brunfels considerable anxiety and he could find out nothing beyond its Latin and German names (Brunfels 1530: 183):

> Circa quam cum multum, ac diu nos torserimus, nihil tamen certi expiscari licuit, neque ab doctoribus medicis, neque ab officinis, ne ab vetulis etiam et herbariis, nisi quod Perfoliata diceretur, nostro idiomate Durchwachß.

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515 Brunfels 1530: 183.
Concerning this herb, although I tortured myself for a long time, it was nevertheless not permitted to ascertain anything certain, whether from medical doctors or apothecaries,\textsuperscript{516} much less from old women and herbalists, except for the fact that it is called \textit{Perfoliata}, or \textit{Durchwachß} in our language.

Brunfels therefore has decided that the \textit{Perfoliata} in question is a counterfeit, because the individuals in question are not, in his opinion, real authorities (\textit{pharmacopolas igitur secuti, et nos etiam Perfoliatam illam inscripsimus, caeterum adulterinam}). However, one \textit{pharmacopola} named Lukas has shown Brunfels a different herb with the same name, which is different enough from the other to remark upon.\textsuperscript{517} This other \textit{Perfoliata} may be of the genus of \textit{Catapodium} or \textit{Esula} and Brunfels says that its features fit so well with the plant bearing the German name that he is inclined to think that the herbalists who showed him the first plant were wrong (\textit{tam adpropriatae respondentem nomini Germanico, ut existimem plane falsos herbarios, qui hanc nobis quam dedimus, pro genuina et germana obtruserunt}).\textsuperscript{518} The true German \textit{Perfoliata} is the one described in Dioscorides, and is kept by the medic Doctus Nicolaus Capitonus for healing.

\footnote{I have taken the liberty to translate \textit{officinae} as apothecaries, however it must be noted that the term was traditionally associated with monasteries. See, e.g., Ratpertus Monachus de Casibus S. Galli cap. 6: \textit{Denique Cellario cunctisque similibus Monasterii Officinis laicales præfecit personas, etc}. See Du Cange 1883-83, t. 6, col. 036c.}

\footnote{Presumably this was done in person, though this Lukas could also have been using an illustration.}

\footnote{Brunfels has provided illustrations of each of the two species, masculine and feminine, but has not provided any description of the German plant. The name is not helpful, since \textit{Durchwachß} is related to \textit{durchwachsen}, “to grow through”. Thus, what Brunfels is saying is that the first plant shown to him by herbalists, which they called \textit{Perfoliata}, did not look anything like what he was expecting, namely, \textit{Durchwachß}. The second plant, however, did and the two illustrations are almost certainly of this alternative \textit{Perfoliata}. There are gaps in the narrative, but it appears that Brunfels ascertained somehow that the plant \textit{Durchwachß} was called \textit{Perfoliata} and in an attempt to verify this by obtaining a plant by that name from the herbalists, he found himself with two different plants.}
broken bones and other wounds.\textsuperscript{519} Brunfels has not been able to discover (\textit{plura non comperi})\textsuperscript{520} any other herbs called \textit{Perfoliata}.

There are several remarkable features of this entry. In the first place, Brunfels is frustrated by the confusion surrounding the name \textit{Perfoliata}, which marks a very early example of the nomenclatural confusion that caused later botanists such as Linnaeus to formalize botanical names. Brunfels also uses the ablative in his description of this second “\textit{Perfoliata}”, in the phrases \textit{coliculis scilicet foliola penetrantibus} and \textit{altitudine dodrantali}. This technique later became a scientific style. In modern botanical Latin, the formal description, which states the genus and species and how they differ from other species and genera, is composed using the nominative case. The formal diagnosis, which provides the physical characteristics of the plant, is generally composed using a string of ablatives (Stearn 1966: 194):

\begin{quote}
A description in the ablative is an extended specific character or diagnosis and is essentially a single sentence with all of the ablative clauses hanging, as it were, on the name of the species at the beginning or on an opening statement in the nominative.
\end{quote}

For the modern botanist, this formula was further detailed so that there was even a recommended number of commas, which were also preferred over periods and their need for capital letters, for particularly lengthy diagnoses.\textsuperscript{521} In addition, Brunfels’ entry on \textit{Perfoliata} makes novel use of scientific terminology. Much work has been done to map the terms used by the early botanists to

\textsuperscript{519} Brunfels 1530: 184. \textit{quae vero fit apud Dioscoridem, et quis porro eius usus, necdum animadverti, nisi quod in officinis audio admodum familiarem esse, et in precio habitam D. Nicolao Capitoni medico, idque ad rupta tantummodo, et vulnera glutinanda.}

\textsuperscript{520} I take it that \textit{plura} in this statement is modifying a missing \textit{genera}, although the absent object of the verb could also just be “things”, as in “information”.

\textsuperscript{521} Stearn 1966: 194.
modern terminology, such as Helen Choates’ 1917 translation of the terms in Fuchs’ glossary. There is no corresponding translation for Brunfels, and considering their temporal and spatial proximity, one would assume that he used the terms in a fashion similar to that of Fuchs. For instance, the term *herba* is defined by Fuchs as “a stemless plant with radical leaves, the seed often being borne on a stalk.” However, few of the botanical terms used by Brunfels in the above entry, e.g., *foliola*, are in Fuchs’ glossary. This makes Brunfels’ terminology singular. Fuchs was both an academic and a physician and this no doubt plays a part in the words they use to describe plants.

Some words do appear in Fuchs’ own entry on *Perfoliata*, however, such as *colicus* (*coliculus*), a small swelling like that of a flower bud (Fuchs 1542: 631):

\[\text{In summo coliculorum capitula, et in iis flores lutei, et semina formam fere Tithymalli, quam vulgo Esulam nominant, prae se ferentia.}\]

\[\text{At the top of the swellings are little heads, and on those are saffron yellow flowers, and seeds that bear a form close to that of Tithymallis, which in the common tongue is called Esula.}\]

This style, in which the sentence lacks a finite main verb but is accompanied by a matter-of-fact list of physical attributes, became over time more and more common in botanical descriptions. Fuchs’ use of the term *colicus* is surprising only in that it is not included in his own glossary at the beginning of the text. This is an indication that in the context of discussing an herb, a *coliculum* was so common and ubiquitous as not to merit comment. In the case of *Perfoliata*,

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therefore, Brunfels gives up on trying to precisely identify it, except to question whether the herb that is called *Perfoliata* by the herbalists is in fact the true *Perfoliata*.

Having dismissed *Perfoliata*, however, Brunfels is almost immediately confronted with another problematic herb, *Narcissus martius* (*Merzenblümen*). In this case, he attempts identification by reference to the parts of the flower, which are so similar to another species of *Narcissus* that Brunfels can only assume that the German name *Merzenblümen* refers to another species of it. He cannot think of another genus that fits (Brunfels 1530: 184):


> The flowers, floria, and bulbs, indeed, nearly everything corresponds to *Narcissus superior*. For this reason, the suspicion comes to us that it is perhaps either a twin to that plant or certainly a particular species of it. For I do not know of any other genus to which I might refer.

However, he refuses to commit to this suggestion, hiding behind meek verbs such as *suspicio* and adverbs such as *fortasse*. In fact, he quickly qualifies his hypothesis with a word of caution, that there is no answer to be found in the *tripus*.\(^{524}\) He is perfectly fine with being educated and corrected by someone better informed than he is (*si quid firmius alii compertum fuerit, adeo non recusamus doceri, et moneri*). He is more interested in provoking those who are more erudite than in teaching others (*magis erudiores provocare, quam alios docere*). In addition to using botanical vocabulary no longer relevant in botany, such as *tripus* and *florium*, Brunfels references a particular species of *Narcissus*, which this one greatly resembles. While he takes time to state the similarities, he refrains from articulating their crucial difference, relying perhaps

\(^{524}\) *Sed, quod saepius moneo, suspicio tantum sic hoc, nullum ex tripode responsum*. By 1766, the term *tripus* was equated either with a *scabellum* (footstool), cf. Hearnius, or a *vasum* (bowl for holding fire). See Du Cange 1883-87: t. 8, col. 186c.
on his illustration to do the work for him. These similarities lead him to believe either that this is
the very same *Narcissus*, which is entirely possible given the inconstancy in naming
conventions, or a different species.

Considering how obvious and unhelpful this conclusion is, the point of the entry seems to
be an *apologia pro se*. Brunfels admits that he is willing to be proven wrong, should more
information be found concerning this plant. If he were not busy (* nisi moliremur*) with the work
given him, to provoke those who are more erudite, rather than to teach others (*magis eruditoires
provocare, non alios docere*), he would have overlooked his suspicion about *Merzenblümen (ad
illum aut connivissemus)*, stamped it out (*exculcavissemus*), and banned it (*proscripsissemus*).\(^{525}\)

In other words, there are three choices for the conscientious herbalist with regard to plants with
which they have little or no personal experience: they can pretend they do not exist; they can
include them in their catalog and simply regurgitate lore regarding them; or they can make some
attempt to identify them and reason through the maze of information found in their lore. Brunfels
has chosen the last, in direct opposition to the medieval herbalists. Unlike Fuchs, however,\(^{526}\)
Brunfels is more grateful for the knowledge he has gained about herbs in general from old

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\(^{525}\) Brunfels 1530: 184. The sentence is a mixed conditional with an imperfect subjunctive in the
protasis, introduced by * nisi*, and a pluperfect subjunctive in the apodosis. Together with several
verbs with negative connotations, the result in English is convoluted, but it seems that Brunfels
considers his task to be provocative, not pedagogical in such situations. If he were concerned
with teaching others about *Narcissus*, he would have left it out, since he cannot make sense of it.

As Professor Fortson has pointed out, the antecedent of *illum* is most likely the suspicion
(* suspicio*) mentioned a few lines above (see pg. 245).

\(^{526}\) Fuchs (1542: a3v-a4r) states in his preface that the entirety of the profession of medical
herbalism has fallen into the hands of pharmacists, fools, and those who are superstitious. That
is, country folk, old women, and uneducated men. (*Hinc est quod totam hanc curam in
pharmacopolas, indoctum mehercule magna ex parte hominum genus, et in stultas moreque
superstitiones mehercules reiciant. Adeo ut nostra tempestate universa herbaria medicina in
manibus sit rusticarum et vetularum mulierum, ineruditorumque hominum, qui errorem subinde
errore cumulant*).
women and herbalists, although he refrains from providing in-depth analysis of the *herbae nudae*. The glut of species learned from them is a bounty, but it also introduces two issues for Brunfels. First, there is the problem of naming them all, and second, the fact that he cannot go into particularly deep detail about them. This is one of the primary reasons why there is such a dramatic difference between Brunfels’ entries on plants that he has identified in the ancients and his descriptions of *herbae nudae*. By citing ancient and medieval authorities, Brunfels is relieved of much of the labor of providing precise, accurate data. Where he cannot rely on others, he balks at the work and insists that others are better equipped to name, identify, and accurately describe the plants in question. This self-deprecation was apparently taken at face value by those who followed him, and as a result, Brunfels’ legacy is most often relegated to the quality of the illustrations done for him by Hans Weiditz.

**4.2.2 Iudicia Nostra**

There are several herbs for which Brunfels is compelled to provide his own opinion, which is always placed after the summaries of the authorities, and is titled *Iudicium Nostrum*. These entries differ from the *herbae nudae* in that, while some are unattested in the Roman authorities, they are found in the Greek writers, in particular, Dioscorides and Theophrastus. The issue with these herbs is therefore not one of mapping data sets, but one of making sense of the nomenclature, both current and obsolete, as found in the herbal tradition. This is why, faced with a plethora of names and species for the herb *Serpentaria*, Brunfels claims that he “broke” under the strain of describing and depicting it (*sic nuper rumpi poteramus in Serpentaria herba*...
Depingenda et delinianda). He makes this declaration well into a lengthy Iudicium Nostrum, which begins with his diatribe, supradictum, about the corrupting effects of Simon Ianuens and Pandectarius. Brunfels now begs pardon from his readers, because he cannot precisely portray the herb and all its names and features (quare veniam etiam mereri nos puto, sicubi non acu etiam pinxerimus omnia). He has, however, managed to identify two species of the plant, which are commonly found in gardens and cultivated places, with the common Gut Heinrich and Schwerbel. But the quality and accuracy of what Brunfels has learned about them remains for others to see (ita enim vetulae nos persuaserunt. De descriptione, et quam omnia respondeant, alii viderint). These two words, alii viderint, are in line with Brunfels’ main project, to leave behind to other medical types and herbalists useful information. It also betokens his reluctance to assert or verify anything about the herb. Instead, he falls back on heavy use of the subjunctive and points to vetulae (old women) as his source, so that anyone who takes issue

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527 Brunfels 1530: 68. See the entry on 62ff. In fact, on pages 59-61, there are three illustrations of three species of Colubrina, two of which bear German nomenclature that Brunfels does not repeat in his entry on page 62. The entry is called De Colubrina, and he provides Greek, Latin, and Germanic names for two categories of species, maior and minor. Colubrina and Serpentaria, along with Colubra, Viperina, Dracunculus maior, Dracontium magnum, and Collum draconis, are all known Latin names for the same species of Colubrina (maior). For the species minor, Brunfels is aware of two Latin names, Dracunculus minor and Dracontia. The Greek names for maior are five in number, and the German two. For minor, there is only one Greek and one German name.

528 He also dramatically complains that herbalists and old women had showed him so many species of Serpentaria that not even the Hydra, the monster of Hercules, had more heads, cuius tam multas species nobis exhibebant herbarii et vetulae, ut non plura capita habuerit illud quondam Herculis iernaeum monstrum.

529 duas tantummodo species subiunximus, quae passim in hortis et cultis locis habentur conspectiores.

530 Praeterea et eam adpinximus quae vulgo Gut Heinrich vocatur, vel Schwerbel.

531 Brunfels 1530: 68.
with his description can direct their ire elsewhere. This, he thinks, is the main difference between
himself and “Pandectarius” and Simon Ianuens, who present data about herbs with such authority
that they lead others into dangerous territory. Brunfels, at least, warns his readers when some
detail about an herb is debatable. In his preface, Brunfels had specifically cited Ermolao Barbaro
and Niccolò Leoniceno’s emendations of Pliny for his own cognitio about herbs. In this Iudicium
Nostrum, he finds the corruption of the texts of the ancients to be a major disgrace. From this, it
can be inferred that he also saw the corruption of Pliny as a disgrace, another ignominia and
contumelia.

In a second Iudicium for the herb Sennicula (Sanicula or Diapensia), known in German
as Sanictel, Brunfels discusses his inability to find sufficient information in the authorities. As a
result, he reverts to the same terminology (divinati sumus; divinatio) he had used in his
Encomium on Pliny in the preface.532 He describes how he has “divined” what little information
he has on Sanicula, and where that has failed him, he refuses to proclaim anything else in a
reckless manner (Brunfels 1530: 82):

Plura de Sanicula apud probatos autores [sic] non lego, nec quae sit dicta Graece, vel
apud Dioscoridem, a quoque comperi. Divinati sumus ultro, citroque multa, verum cum
vana sit ea divinatio, quam non firmat certa aliqua scriptoris autoritas, nihil temere
volimus pronunciare.

I have not read more about Sanicula in esteemed authors, nor have I discovered from
anyone what it is called in Greek, even in Dioscorides. I have divined much here and
there, but when that guesswork is in vain, and when the authority of a writer does not
confirm anything certain, I wished to proclaim nothing rashly.

Brunfels’ use of the language of divination is not meant literally, but is a wry commentary on the
instability of the accounts of this herb in the authorities upon whom he relies, the autores

532 These terms can simply be metaphorical and taken to refer to guesswork, but they nevertheless
have clear religious implications.
probati. Without a stable, trustworthy source, Brunfels implies that he must turn to haruspicy and auspices in order to make sense of the jumble of information, a practice that leads him to leave behind even the nomenclature of the authorities. This necessitates the inclusion of his own iudicium. At this point, Brunfels finds it appropriate to express a firm opinion, namely, that the herb Sanicula is in fact a species of Solidago:

Interim vehementer probo vulgi herbariorum sententiam, qui hanc minorem Solidaginem constituunt.

Meanwhile, I strongly approve of the opinion of the crowd of herbalists, who establish this herb as Solidago minor.

Brunfels is so certain of this that he recommends discontinuing the use of the Greek nomenclature (dicimusque et eius effectibus, cum iam multa experientia constet, graecam eius nomenclaturam...[relinquimus]). In addition, he recommends abandoning whatever names are found in Dioscorides and Pliny (et quibus sub nominibus apud Dioscoridem et Plinium legatur...relinquimus).\(^{533}\) Brunfels is not only relying on his own knowledge of and experience with this herb, but he has sufficient confidence to finally make a recommendation about its nomenclature.\(^{534}\)

A third plant that demands a iudicium from Brunfels is Buglossa, for which there is, as is now common in many of his sources, debate regarding its nomenclature and identification. Some call it Cirsion, which is then equated with Borago, including by Dioscorides, by reference to

\(^{533}\) Brunfels 1530: 82.

\(^{534}\) Compare this to his treatment of the herb Tormentilla (86ff). Brunfels does everything he can to add external authority to his take on the problem, refusing to state a firm opinion and saying, nihil habeo quod respondeam. Rather, he cites Pliny 25.9, who in turn gets his information from Theophrastus, both describing the plant as Pentaphyllon, in such agreement that they must be accurate enough to serve as models for a painter, an indication that Brunfels saw just as much value in textual descriptions for identifying herbs as in illustrations.
Marcus Cato,\footnote{Brunfels 1530: 114, cf. Diosc. 2.129: \textit{quam veteres Buglosson dixerunt, nostrae aetatis Boraginem esse}. See fol. 20v-21r of the Morgan Library’s 10thc. Dioscorides for Buglosson: \url{http://ica.themorgan.org/manuscript/page/35/143825} and \url{http://ica.themorgan.org/manuscript/page/36/143825}.} Pliny himself calls it \textit{Cirson}, and claims that while its leaves are similar to those of \textit{Buglossa}, they are smaller and of an off-white color:

XXXIX. Cirsion cauliculus est tener duum cubitorum, triangulo similis, foliis spinosis circumdatus. spinae molles sunt. folia bovis linguae similia, minora, subcandida, in cacumine capitula purpurea quae solvuntur in lanugines. hanc herbam radicemve eius adalligatam dolores varicum sanare tradunt.\footnote{HN 27.39.}

XXXIX. \textit{Cirson} is a tender, little sprout, two cubits high, triangular, and surrounded by prickly leaves, the prickles being soft. The leaves are like those of \textit{bugloss}, but smaller, and whitish. At the tip are small, purple heads, which fall off as down. It is said that this plant, or its root, used as an amulet, cures the pain of varicose veins. (trans. Loeb)

In his 1493 \textit{Castigationes}, Barbaro has a correction for this entry (1493: fol. 200r):

\textit{€ Circesion cauliculus est). Legendum est Cirson sive Crision ex Dioscoride quoniam Varicibus auxilio sit: quas κιρσας vocat Hippocrates: ixias Aristoteles item.}

\textit{€ Circesion cauliculus est). This should read either \textit{Cirson} or \textit{Crision}, per Dioscorides, since it is helpful for varicose veins, which Hippocrates calls “kirsas” and Aristotle calls “ixias”.

From this, it is clear that the edition or manuscripts of Pliny to which Barbaro had access did in fact read \textit{Circesion} instead of \textit{Cirson}, and this emendation has been adopted by modern editors.

Barbaro elaborated in his \textit{Corollary} on the ubiquity of the herb (cf. Brunfels 1530: 117):\footnote{The original is in Barbaro (1530: fol. 61v). Brunfels has made only a few changes to punctuation.}

\textit{quae si non Cirson est, mirum, quamobrem sit indicta veteribus, quae sit et vulgatissima, et cibo gratissima. Nisi quis Buglossae generibus contribuat.}\footnote{Columella has a recipe for salad that consists of just such garden herbs. See \textit{On Agriculture} XII.59: \textit{Addito in mortarium satureiam, mentam, rutam, coriandrum, apium, porrum sectivum, aut si id non erit viridem cepam, folia lactucae, folia erucae, thymum viride vel nepetam, tum etiam viride puleium, et caseum recentem et salsum: ea omnia pariter contetito, acetique piperati exiguum, permisceto. Hanc mixturam cum in catillo composueris, oleum superfundito.}
If this herb is not *Cirsion*, it is remarkable, and this would mean that it was without a name for the ancients, when in fact it is very well known, and most agreeable as a foodstuff. Unless someone assigns it to the kinds of *Buglossa*.

Brunfels sums all of this up with his *iudicium*, in which he tells his reader that the judgment is actually not his, but theirs to decide on, based on the image he has painted for them of each plant, *Buglossa* and *Borago*:


The decision is now under your control, Reader, whoever you are. We have illustrated each for you, both *Buglossa* and *Borago*.

The reader has also been provided with the words of Dioscorides and other learned individuals, and so Brunfels feels comfortable in stating his opinion that the two plants are the same in several respects (Brunfels 1530: 117):

> habes praeterea doctorum hominum iudicia, et Dioscoridis verba tibi subscripta: verisimileque mihi videtur, ut in floribus et haerbis conveniunt, ita quoque in iuvamentis.

You have, moreover, the opinions of learned men, and the words of Dioscorides recorded for you. And it seems quite likely to me, that just as they agree in flowers and leaves, so too do they agree in their medicinal properties.

This marks the first time that Brunfels directly addresses the reader, and the first thing he does is place the onus for making a decision about the competing authoritative accounts onto the reader. The subjunctive *sit* signals his wish not to be the sole arbiter, not to have the responsibility of making a decision. Brunfels has done his duty by describing both *Buglossa* and *Borago*, and has provided the opinions of esteemed authorities. The action of painting a picture of the state of the debate is in the perfect active indicative (*adpinximus*), whereas his actual assessment of the debate is placed in the passive (*mihi videtur*). This passivity is somewhat belied by his use of the
adverb *verisimile*, however. Why bother saying, “it seems likely to me?” Yet such contrasts between assertion and prevarication mark the bulk of Brunfels’ *iudicia*.

For a fourth plant, *Narcissus*, Brunfels has considerably more to say in his *iudicium*, the language of which confirms the stress and anxiety that so characterize Brunfels’ anguished approach to identifying herbs. He declares that he has literally been tortured, by himself and by scholars and herbalists, over the name of this flower for almost two years (Brunfels 1530: 133):

> ab annis fere duobus, vehementer nos torsimus, et omnibus pene nostrae urbis doctis viris molesti fuimus, proinde et ex vulgo haerbariis illis, ut nomen saltem huius floris percunctaremur.539

For almost two years I have tortured myself terrifically, and irritated nearly all the learned men of our city, and in the same way those public herbalists, all to investigate the name, at least, of this flower.

Yet he still cannot verify it (*verum adeo certi nihil valuimus expiscari*), and he cannot wonder enough how this herb, which is so well known and seen in such numbers in every meadow, appearing with the spring swallow, has utterly disappeared from all notice of mankind.540 It is remarkable that such a common flower has somehow or other avoided description by any of the authorities. In this case, Brunfels is referring to one of the few situations about which he has a very strong opinion: the source of ones knowledge of a plant. He finds it miraculous that this herb541 is the source of so much confusion, when it is so well known to German medics and herbalists. The issue is one of book learning versus experience, and for this reason, Brunfels chooses to believe what the herbalists say, since they have gained their wisdom from practice,

539 *percunctari* = alternate spelling of *percontor*.

540 *ut mirari satis non queamus, quo modo herba, alioqui vilissima, tamque in omnibus pratis, cum hirundine prima conspicua, ex omni hominum noticia disperierit.*

541 It has two German names, one for the first flowering in March, and another for the September flowering.
not books (*herbarios aliquot percunctari coepimus: qui non ex libris sapiebant, sed experientia rerum edocti erant*). Thus, concerning *Narcissus*, Brunfels chooses as authorities the herbalists and his own observations (Brunfels 1530: 133):

> sic in Narcissum omnia quadrare animadvertimus, ut nisi plane noctuinis oculis simus, videmur nobis semel apprehendisse. Quod igitur ex haerbaris accepimus, quodque partim etiam nos observavimus, id est.

In this way, in the case of *Narcissus*, we see everything squaring up, so that even if I do not have owl vision, I seem to myself to have understood once and for all. Therefore, it is what we have learned from the herbalist, and what we have also observed bit by bit.

Yet, despite his use of the phrases *experientia rerum edocti erant, animadvertimus, apprehendisse, accepimus, and observavimus*, all of which imply the use of senses and empirical observation, Brunfels still cannot bring himself to assert the truth or validity of what he has learned. Instead, he places these phrases and terms in clauses that subvert them: he *might* have understood. At the same time, he ends with an indicative copulative verb: it (the classification of this plant) *is* what he has learned and observed.

What follows is more detail about the plant’s growth habits, climate, and physical characteristics than is typical for an *iudicium*. From all of this information, it can be inferred that Brunfels is particularly familiar with this plant, and likely has experience with both collecting and propagating it. Consider how he describes its root (Brunfels 1530: 133):

> Quod ita habere, et nos quoque experti sumus, observavimusque, primo teneram et bulbosam radicem, et Porri, vel Satyrionis folia.

We have observed it (and we also have experience with it) to have a light, bulbous root, and the leaves of *Porrum* or *Satyrion*.

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542 Literally, “the eyes of an owl”. Brunfels’ use of *nisi* is confusing. In this context, it would not make sense to say “unless I have owl vision”. I have therefore more loosely translated *nisi* as “even if not”, as in, “my observations are valid, even though I have not been endowed with the excellent vision of an owl”.

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He knows that the root is light and bulbous because he has seen it himself, and is experienced with it. Due to his own extensive personal knowledge of this plant, he has taken the liberty to bestow the name of *Narcissus* upon it (*ausi constanter sumus, Narcissi nomen indere*). He concludes, however, by ensuring that his reader knows that his *iudicium* is backed up by the authorities, to whom he nevertheless is secure enough in his own expertise to issue a warning, in which he again reverts to the language of prayer and supplication (Brunfels 1530: 133):

> Quam autem probe haec observaverimus, et quam scite illi nos docuerint, arbitrium aliorum, existimationemque volumus esse, quos et ipsos tantae rei periculum aliquando facere monemus atque obsecramus.

The extent to which I have effectively observed these things, and just how expertly they have taught me about it, I intend to leave to the judgment and opinion of others. I do urge and implore these individuals at some point to take the risk themselves of such a great task.

The verbs *moneo* and *obsecro* could be nothing more than hyperbolic expressions of counsel to one’s peers and superiors, but such language is unique for any text that purports to be scientific, and in light of Brunfels’ deference to Pliny, it should not be ignored. It is either straightforward obsequy or sly and ironic appropriation of religious terminology, but in either case, it is pointed and purposeful, not merely the thoughtless deployment of vocabulary that is typical for medicine and science.543

Brunfels’ expression of wonder (*mirum*) is a trait common to his other *iudicia*, as in *Pes corvi*, or *Silago*.544 In this *iudicium*, the word occupies the first space: *Mira est scriptorum*

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543 This is especially true for someone writing in a language long relegated to scholarly, religious, and intellectual texts, and which he does not speak colloquially.

But this is not a true wonder. It is not actually aimed at the fact that there is disagreement among the authorities. Rather, Brunfels is experiencing a growing disbelief in the fact that he cannot simply rely on the authorities, but must turn inward, towards the reasoning process, based on observation and critical thinking. Brunfels therefore switches to the language of the courts and of philosophy, and claims that he “judges” that he himself will set the value for the work, even if he is only fixing it for a short time, and that he ought to subscribe to Leoniceno’s reasoning (unde precium opere facturos nos arbitramur, si paulisper figentes hic pedem, Leonicenicam disputationem subscribamus). This is because, out of everyone who is “trained in philosophy”, no one seems to Brunfels to be more prudent about this herb (quod ex omnibus nemo prudentius philosophatus videtur de ea haerba, me quidem sententia). It is important to Brunfels that the opinion of Leoniceno be described as a disputatio, which implies the use of reasoning and the construction of a valid argument. This is why Leoniceno is described as philosophatus, which I have taken as “trained in philosophy”. He metaphorically contrasts this kind of authority with divine inspiration and oracles, exclaiming how he correctly divines the situation, and permits the opinion of others, such that no oracle or Sybil should be allowed in his pages (verum quam haec recte coniiciamus, aliorum aestimatione permittimus, Oraculum nullum, vel Sybillae folio sunto). Further evidence of this turn from divination to reasoning and observation is found in Brunfels’ iudicia for the herbs Cynoglossa and

545 Brunfels 1530: 146.

546 This wonder is also unlike that expressed by the Europeans in the New World: Brunfels is dismayed in such a manner that he is approaching apostasy, whereas the New World naturalists are filled with awe at the unfamiliar productions of Nature.

547 Brunfels 1530: 146.

548 Brunfels 1530: 146.
Hepatica, in both of which he uses the verb *comperio*, which indicates verification and discovery. *Comperio* is rare for Brunfels, who suddenly decides to mention the importance of using his illustrations for verification purposes. Regarding *Hepatica*, he notes that according to Hieronymus Haerbarius, there are three species of it, and of these, Brunfels can say that while he was putting together his herbal, he had specifically requested images to be made of the first two, meaning that he already knew of them (*duae primae, dum has εἰκόνες pingereμus, a nobis desyderabantur*). The third has been presented by reference to the authorities. Of the three, the images correspond to the first and third, and nicely agree with the descriptions of Ermolao Barbaro and Hieronymus Haerbarius. This is a crucial development in the history of botany, because it is a very early example of verifying the account given of a plant by means of an image drawn from life. The import of this technique seems to have passed Brunfels by, however, at least up to this point. Most of his verification processes until now have been based simply on prior experience, and the usefulness of the images has been relegated to the process of collecting, but not scientifically identifying, plants in the wild.

In the case of *Capillus veneris*, Brunfels again addresses the reader, but this time, he seems to have gained some confidence. He explains how the images he provides relate to the description of the plant found in the ancients, versus the contradictory account of the much-maligned officinae:

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549 Regarding *Cynoglossa*, he says that he has not yet verified the second type described by Pliny, which has small burs, *quae vero sit Pliniana altera, quae lappas minutas fert, neendum comperi*. This is in reference to Pliny’s statement that in addition to the already known *Cynoglossa* there is another similar one, which has tiny burs, *Est alia similis ei, et quae fert lappas minutas*. (25.XLI). Regarding *Hepatica*, he says that he has only discovered in the accepted authors what he himself recalls about *Hepatica* (*Id solum comperi apud receptos autores de Hepatica, quod equidem memini*). See Brunfels 1530: 177 and 192, respectively.
Vides Lector, veterum descriptionem non convenire cum ea quam hodie monstrant officinae Veneris Capillum, proinde neotericos etiam pugnantia dicere: ut nihil minus etiam hodie cognoscamus, quam verum Adianthon.

You see, Reader, that the ancient description does not correspond to what the apothecaries indicate is Veneris Capillus, just as the neoterics say something contradictory, namely, that today [what] we know [is] nothing less than true Adianthon.

By “neoterics”, Brunfels generally means either the author of the Pandectae, or those who have been heavily influenced by the text. Though the Pandectae are dated to circa 1317, a few printed editions were published in the 15th century, with the most recent for Brunfels being the 1488 Liber Pandectarum Medicinae.\(^{550}\) In this edition, the entry for Capillus veneris is chapter xcix, and begins with various known names. This being a German edition,\(^{551}\) the first name provided is Berscegarten persice, followed by various Latin names, including Capillus porcinus and Capillus veneris. The “author” of the Pandectae has simply collated accounts of the herb from other sources, including Serapion\(^{552}\) and Dioscorides. Thus, the entry to which Brunfels is referring is from the former, who equates Capillus veneris, Adionton, and Politricon (Unde omnia ista scilicet capillus veneris: adianton : politricon acipiuntur pro eodem).\(^{553}\)

That the Pandectae are mostly unoriginal and cite ancient authorities provides a certain precision to Brunfels’ complaint that they had really mixed everything up (qui praeterque que omnia

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\(^{550}\) Attributed to Matthaeus [Silvaticus] and Matthaeus Moretus, and published in Venice. Digital copy: [https://daten.digitale-sammlungen.de/~db/0006/bsb00060733/images/](https://daten.digitale-sammlungen.de/~db/0006/bsb00060733/images/).

\(^{551}\) The text is in the original Latin, but the front matter and primary names are all in German.

\(^{552}\) Serapion of Alexandria, whose medical works are not extant, and whose opinion is known by way of Galen, Dioscorides, Celsus, etc. In this particular instance, the attribution to Serapion is by way of Dioscorides.

\(^{553}\) Liber Pandectarum Medicinae 1488: fol. 42r.
The issue is not so much that the Pandectae is presenting incorrect medical information, although that is certainly a problem, but that it is doing so while citing ancient authorities. The transmission of these texts through the Pandectae and the general public’s knowledge of them suffer in tandem with those who take its practical, medicinal advice. It is far safer to listen to the opinions of haerbarii, vetulae, and oitores, all of whom have experience with these herbs and do not need to consult compendia of questionable veracity. Therefore, Brunfels rejects the “neoteric” take on Capillus veneris, which he claims is a type of Saxifrage, as Pliny categorizes it. It is a common garden herb, so common in fact that it is essentially a weed that gets tossed out. As far as the illustrations are concerned, Brunfels made do with images of the common species whenever a particular species was not available for reference (Brunfels 1530: 221-222):

Unde apparet potius Saxifragiae speciem esse Capillum Venereum hunc, quod et Plinius etiam innuit, quam nos hodie ex muris et parietinis iactamus, quam capillum Veneris: tamen quando alia ad manum non suppetebat, vulgatam adpinximus, donec aliam demonstraverimus.

Whence it appears that this Capillus of Venus is actually a type of Saxifrage, which even Pliny intimates, and which these days we throw out from our walls and gardens, rather than Capillus veneris: nevertheless, whenever one [species] was not present to hand, I depicted the common type, until such time as I could demonstrate the other.

This exhibits an astounding blindness to the fact that Weiditz’ illustrations have value as tools for identification. It also completely undermines all of the work Brunfels has done to tease out the confusion surrounding the nomenclature of the herbs. Yet these criticisms, justified as they may be from the standpoint of the history of botany as a science, are not the sum of his work. As these analyses of Brunfels’ herbae nudae and iudicia nostra demonstrate, Brunfels’ original Latin began to develop as he was forced to confront the fact that he had no sources on which he

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554 Brunfels 1530: 68.
could draw. The features of this Latin seem unremarkable on their own, but in contrast with
Pliny’s Latin, with the remarks of the Italian humanists, with the Latin of the medieval herbals,
and finally, with the formal botanical Latin that would later develop, they come into focus as an
important linguistic transition.

Conclusion

This project concerns the early 16th-century development of botanical Latin. Modern botanical
Latin involves the application of pre-established rules and recommendations, for the sole purpose
of scientifically describing a species or genus in such a way as to distinguish it from others as a
distinct entity. In conjunction with the waning of Latin as the universal language of science, this
has resulted in a style of composition and use of technical vocabulary that is distinct from earlier
examples of botanical descriptions written in Latin. The slow progression from, e.g., Charles De
L’Ecluse’s 1601 description of *Siliqua silvestris*,\(^{555}\) which not only is clear and precise but
demonstrates mastery of Latin as a language of expression, to 20th-century botanical diagnoses,
which are long on technical vocabulary and incredibly short on skill or style, is very little
studied. However, the earliest botanical texts also employ “botanical Latin”, even if, unlike later
eamples, it is difficult to separate out from other genres of Latin stylistics. As a result, these
early texts are the locus of a transition from the medieval Latin of the herbal tradition to the
scientific Latin of the Renaissance. Otto Brunfels’ 1530 herbal is, as a liminal text, important for
the eventual formalization of botanical Latin and the stabilization of botanical nomenclature,

\(^{555}\) See the Appendix.
which the ICN explicitly credits to Karl Linnaeus.\textsuperscript{556} Yet the fundamentals of modern botanical Latin predate Linnaeus, and can be seen in Brunfels’ Latin, which makes use of binomials, paratactic ablative constructions, and increasingly technical vocabulary.

As a transitional text, however, Brunfels’ herbal displays some key differences between scientific botanical Latin and the herbal tradition and antiquity, especially the focus on healing. As far back as Theophrastus and Pliny, descriptions of plants were dominated by two main criteria: physical descriptions of roots, leaves, and flowers (not necessarily drawn from personal observation), and details regarding their medical uses. The move away from the latter had not yet solidified by 1530, nor even by 1542 with Leonhard Fuchs (1501-1566), whose herbal, \textit{De Historia Stirpium}, was published 12 years after Brunfels’. Both writers, who were also both physicians, continued to discuss the medicinal properties of plants. Yet even the 17\textsuperscript{th}-century botanist Kaspar Bauhin (1560-1624), who was not a physician, considered a plant’s medicinal properties to be innate, and therefore in need of scientific description.\textsuperscript{557} The disappearance of medicine from the field of botany was therefore gradual. Bauhin’s text is quite late for such a stance, especially when botanists like L’Ecluse had already turned away from medicine in their botanical works by 1601. Nor was this trend simply an intellectual decision about content. The move away from medicinal descriptions meant that the vocabulary of botanical Latin evolved to include precise terminology for a plant’s physical features and to exclude terminology for

\textsuperscript{556} \textit{International Code of Nomenclature for algae, fungi, and plants}. 2018 (Shenzhen Code). The influence of Linnaeus’ work can be seen in the numerous rules and recommendations that cite his system. See, e.g., Article 20.2. “The name of a genus may not coincide with a Latin technical term in use in morphology at the time of publication unless it was published before 1 January 1912 and was accompanied by a species name published in accordance with the binary system of Linnaeus.”

\textsuperscript{557} Bauhin 1623: 17. \textit{Pinax Theatri Botanici}. Basileae Helvet.: Sumptibus et typis Ludovici Regis. Bauhin quotes Galen, who referred to \textit{materia medica} as “innate qualities” (\textit{bonae indoles}).
medical practices. In Pliny, the Latin has an easy simplicity associated with a natural language, whereas in Leonhard Fuchs (1542), it has an economy of expression that is deliberate and precise because the goal is to be intelligible. The botanists of the 16th and 17th centuries grew increasingly concerned with resolving the issue of proper plant identification, and this concern was reflected in the stabilization and formalization of nomenclature as well as in the development of a laser focus on the plant itself, rather than on its uses. As a result, there was a need for more and more technical terms for the increasing knowledge of the parts of a plant, and less need for a complex medical lexicon.

Brunfels’ style lies somewhere in between. The beginnings of this shift can be seen in his vocabulary. He refers to the healing properties of herbs over and over again, but rarely uses the verb *sano*, which is prevalent in Pliny. Rather, he uses *praestat, curo*, and *valeo*. This is remarkable in part because his predecessor and inspiration, the humanist Ermolao Barbaro, uses the term *sano* to refer to his own emendations of Pliny. By 1493, there had already been a shift in the vocabulary of “herbals” away from terminology associated with medicine, and towards more strictly botanical terms. Brunfels’ use of *sano*, then, is not anachronistic; rather, he uses it in similar contexts to Barbaro. The appropriation of *sano* by Barbaro for the stabilization of an authoritative text was carried over to the context of botany by Brunfels. As a borderline text, the *Herbarum Vivae Eicones* displays certain features, few of which are novel on their own, but whose consolidation into one herbal render it noteworthy:

1) A general tone of anxiety and frustration, especially with regard to the “unknown” herbae nudae, which prevent Brunfels, by their unmappability, from stabilizing his cognitio about herbs;

2) A refusal to paint himself as an authority, and a corresponding reliance on others, which results in the appropriation of religious terminology;

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558 *Castigationes* 1493: aiir.
3) A notable lack of the “rhetoric of wonder”;

4) The use of active verbs whose subject is the herb in question;

5) More technical vocabulary;

6) A focus on experience versus book learning;

7) The use of complex parts of speech with very simplistic sentence structure and syntax;

8) An overall reluctant, even lackluster tone when forced to provide his own opinion or observations;

9) A marked shift from the language of religion and divination, and deference towards ancient authorities to pointed use of legal and philosophical terminology;

10) And, finally, three distinct techniques for the identification of herbs:
   a. Comparison with other plants, especially by reference to leaves, roots, and flowers;
   b. Discussion about nomenclature, and the linking of various names to one another;
   c. Useful, lifelike illustrations

Brunfels’ Latin is also very much influenced by both the medieval herbal tradition and by the reception of Pliny in the 15th century. Stearn (1966) claims that classical Latin was not suited to the task of describing plants in the manner that Renaissance-era science needed. Its vocabulary was sufficient, but knowledge of plants was limited to medicinal uses, habitats, and growth habits. As such, classical “botanical” Latin does not show any “interest in their [= plants’] structure deep enough to make the detailed comparisons and the generalizations which bring forth a scientific terminology for their different parts. That is essentially the task of a philosopher rather than a herbalist.”

Stearn argues that this approach to plants is first seen in Theophrastus. For Stearn, both the form and the vocabulary of modern botanical Latin have an origin in a

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fundamental change in the way botany and the study of plants was conceived. Similarly, Brunfels’ method of comparison is more philosophical than the standard medieval herbalists’ approach. If so, this is yet another way in which his work is important for the botanical Latin that came later.

Otto Brunfels was engaged in a similar project to that of Ermolao Barbaro. Initially, Brunfels attempted only to set forth the *sententiae* of various authors on the herbs in his text, but ended up frustrated and in many cases unsure of what stance was correct. If we grant to Brunfels a degree of credit for the development of botanical Latin, then its origins can be said to reside in confusion and chaos, which are the result of Brunfels’ somewhat misguided attempt to imitate his predecessors. This helps to explain his initial use of religious terminology in reference to Pliny and other authorities, and his growing disbelief in their wisdom, as if the herbal is a diary recording Brunfels’ developing apostasy.560 This chaos and anxiety is also explained in terms of transformation methodology. Brunfels is interacting with a reference sphere without realizing that what he is engaged in is a form of reception. He tries to reconstruct the authoritative stances on the herbs that he cannot accurately identify, but in the process, is forced to provide his own opinions and experiences, thus appropriating the reception sphere itself and transforming it into a new product, a proto-botanical text in which can be seen the markers of what would eventually become formal botanical Latin.

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560 There is a relationship between this anxiety and distrust on Brunfels’ part, and the influence of alchemical and alchemy-adjacent treatises on Italian scholarship in the 15th century. This can be seen in such texts as Nikolaus Cusanus’ 1440 *De Docta Ignorantia*, which argues that scientific inquiry and rationality are insufficient to understand God; that speculation, which is called *ignorantia*, was a crucial component of true knowledge.
In Chapter 1, I examined the elements of Pliny the Elder’s *Historia Naturalis* that contributed to and served as an inspiration for Otto Brunfels’ 1530 herbal, *Herbarum Vivae Eicones*. Using transformation methodology, I argued that Brunfels’ appropriation of these features of Pliny was more than just classical reception. Rather, Brunfels’ herbal is an *alleolopoietic* reception sphere, in which the binomial format, the insistence on transmitting *cognitio* (knowledge) of plants for posterity, and the argument for experience over book learning, were all transformed. In addition to Pliny, however, Brunfels was responding to a particular debate among Italian humanists of the late 15th century. This was initially characterized by criticism of the earliest printed editions of Pliny’s *Historia Naturalis*, and then by censure of Pliny himself as a natural history authority. For Brunfels, the state of Pliny’s text was tied to his own project of making available to the broader public a reliable compendium of medicinal herbs. If the printed editions of Pliny, his main source, could not be trusted for accuracy, then his own work would become unstable. Thus, in Chapter 2, I delved into the manuscripts of Pliny, including those annotated by Petrarch, and the first two printed editions of 1469 and 1470. In Chapter 3, I turned to the Italian humanists Giorgio Merula and Niccolò Perotti and their reactions to the 1470 edition and to the technique of printing itself. I then discussed the dispute between Niccolò Leoniceno and Pandulfo Collenuccio regarding alleged mistakes in Pliny’s text. The chapter concluded with Ermolao Barbaro’s emendations of the *Historia Naturalis* and his own edition of it, published posthumously in 1597, which Brunfels treated as just as significant for his herbal as Pliny himself. Finally, in Chapter 4, I turned my attention to Brunfels’ herbal, highlighting the ways in which it was novel and far more influential on the burgeoning field of botany than historians of
the field have previously acknowledged. I focused in particular on a number of herbs that he calls *herbae nudae*, because he cannot identify them as herbs known in antiquity and therefore has to describe them himself. Similarly, there is a set of herbs about which he has some opinion to insert into those of the authorities; in these cases, he adds a section called *Iudicium Nostrum*. In both cases, Brunfels’ Latin is original, not derived from an external authority, and therefore can be seen as early examples of botanical Latin.

The argument I have made is that Brunfels’ herbal is a liminal, transitional text in the development of botany as a scientific discipline. His methodology was a straightforward and simple process of verification. As a practicing physician in Germany, he gathered vernacular names and illustrations of herbs with medicinal benefits and then identified their Greek and Latin names, providing descriptions from a variety of ancient and medieval authorities. Some of these plants had German names for which the ancient Latin and Greek nomenclature was unclear or unknown to Brunfels. As a result of his inability to map these plants onto ones that are known and described in his sources, Brunfels was forced to discuss them himself. These entries, despite Brunfels’ reluctance in writing them, provide crucial evidence for the transformation of the vocabulary and style of plant descriptions. However, the bulk of Brunfels’ herbal is still heavily influenced by and reliant on the nomenclature and descriptions of earlier authors. From Pliny, he borrows the use of the adjective *nudus*, deploying it for medicinal herbs with which he himself is familiar, but which do not have Greek or Latin names (*herbae nudae*). Pliny had used the same adjective with regard to plant names that are not descriptive, are not in Latin, and do not have a form of which he approves (*nomina nuda*). From Ermolao Barbaro, Brunfels re-appropriates the language of healing. Brunfels’ work is therefore not just another herbal. It is self-aware, and highly individual in its praise of Pliny as a natural history authority, its incorporation of the work
of the Italian humanists who critiqued Pliny, and its recognition of the importance of textual emendation and philology for the study of plants. As a medicinal herbal, the *Herbarum Vivae Eicones* stands apart from others in the same genre.

Yet this project is not, strictly speaking, simply about Brunfels and his herbal. It is about the development of botanical Latin, which over time became increasingly formal and specialized in tandem with the discipline of botany. As one of the earliest printed botanical texts, I argue that Brunfels’ herbal was influential not only on the field of botany, but on the development of its language of expression, Latin. This point is best made by comparison with how his successor, Leonhard Fuchs (1501-1566), treats the same plants. This allows us to identify the precise characteristics of early botanical Latin and the particular ways in which it changed in the decade separating the publication of their two texts. A full comparison of all of the plants in both authors is unnecessary in order to demonstrate Brunfels’ influence on the development of botanical Latin. It is sufficient to focus on one of the three *herbae nudae* in Brunfels: *Kuchenschell*, *Gulden Guntzel*, and *Gauchblüm*. Of these, only *Gauchblüm* is discussed by Fuchs in his 1542 text *De Historia Stirpium*. Fuchs was the next European “botanist” after Brunfels, and was also a German physician, making his treatment of the herb especially useful for comparison. Moreover, the nomenclature used by Fuchs for this same herb (*Hiberis* and *Nasturtium agrestes*) can be found in Andrea Cesalpino’s 1583 *De plantis libri xvi*, as well as in Kaspar Bauhin’s 1623 *Pinax Theatri Botanici*. This latter text, despite the many decades that separate it from Fuchs and
Cesalpino, is nevertheless the earliest comparable botanical text to follow them. Cesalpino’s and Bauhin’s entries under these headings therefore provide further data with which to track the changes in botanical Latin, up until Karl Linnaeus’ 1743 *Genera Plantarum* and the 1797 posthumous *Species Plantarum*. Gauchblüm is just one plant, but the various attempts by botanists to identify, illustrate, classify, and describe it demonstrate all of the features of botanical Latin that we have been discussing. By tracing the changes in its descriptions from Brunfels to Linnaeus, the changes in and development of botanical Latin therefore also become clear.

This method of comparison is straightforward, but one clarification should be made. The botanists of the Renaissance not only significantly altered the manner in which they described

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561 Antonio Musa Brasavola’s 1536 *Examen Omnium Simplicium Medicamentorum* is a compendium of medicinal plants, simples being one-ingredient concoctions that are generally made from an herb. Similar texts had been proliferating since the advent of printing. Some historians of botany argue that Brunfels’ work is not dissimilar enough to warrant exclusion from the category of herbals, especially given that the term appears in the title of his work. However, Brunfels’ work was transitional, and while his self-posturing as unqualified to write about plants in an original, scientific manner helps to explain his use of the term “herbal”, this does not mean that he contributed nothing to the development of botany. Moreover, Brasavola’s text is an attempt to do the same thing that Brunfels’ text did, only for plants native to Italy: match ancient names, especially those found in Dioscorides, with common names in the vernacular. It is entirely possible to argue, therefore, that Brasavola’s text is on equal footing with Brunfels’ in the development of botany and its formal language. Our focus on Brunfels and Fuchs is strategic, and not meant to exclude Brasavola as an important player. Fuchs quite simply superseded both in terms of reputation and it was Brunfels, a fellow German, to whom Fuchs primarily responded and reacted. Another issue concerns stylistics. Brasavola’s text is a dialogue between himself and an elderly man named Senex. Meanwhile, both Brunfels and Fuchs retained the catalog format long used in herbals. The relationship between Brasavola’s writing about plants and the increasingly sparse and formal style of botanical Latin is too nebulous for this project.


plants, but their vocabulary and nomenclature became more precise and they ceased to describe plants that had already been discovered. When Linnaeus mapped the variety of plant names from antiquity and the Middle Ages onto contemporary, 18th-century nomenclature and taxonomy, he did not simply solidify their classification. The very plants in question also disappeared from the botanical literature. There was simply no further need to describe them, because every botanist now knew not only their scientific nomenclature, but also their key diagnostic features. Modern, post-Linnaean botanical Latin only and exclusively describes new genera and species, plants that Brunfels would have called herbae nudae. But where Brunfels despaired of the task of describing these plants, trained botanists saw such situations as opportunities, not only for the advancement of their own scholarship and careers, but for passing along accurate, “universally” understandable nomenclature and formal diagnoses and descriptions. As a result, the following distinction must be made: in early botanical texts, the plants being described differ from the plants described in botanical texts from the 18th century on. Thus, any comparison of the two must use criteria and variables other than the content or substance of the nomenclature, diagnoses, and descriptions. There is, however, significant overlap in the formal descriptions of genera, as opposed to species and varieties within species. For example, the genus Laurus was already known in antiquity, even if the particular species described in ancient texts differ from species in Renaissance texts. As we will see in regard to Gauchblûm, much of the information provided by Fuchs is derived from comparison with a particular genus, rather than other species.

564 Admittedly, this is a simplification. Many plants have been recategorized and renamed since Linnaeus’ time. Almost every issue of the botanical journal Taxon includes proposals for renaming or reclassifying some genus or species, and the International Botanical Congress regularly handles such issues via its Committee on Nomenclature. Yet the fact remains that the bulk of scientific botanical publications post-Linnaeus were, and are, about new or unknown species and genera.
Similarly, more attention will be paid to Linnaeus’ *Genera Plantarum* and comparisons will focus on vocabulary, style, methods of naming, and the categories of description.

**Fuchs on Brunfels**

Leonhard Fuchs (1501-1566) was, like Brunfels, a German physician who authored an herbal in Latin. *De Historia Stirpium* was published in 1542 and like Brunfels’ herbal, featured realistic woodcuts.\(^{565}\) Perhaps because of such similarities, and despite the initial popularity of Brunfels’ herbal, Fuchs’ text quickly superseded Brunfels’ in renown. In this project, I am interested not in the perceived authority of Fuchs’ herbal, as opposed to Brunfels’, but in a comparison of the methods employed by Fuchs to describe the same plants as Brunfels. It is true that the style of the Latin and the vocabulary play a role in Fuchs’ reception and legacy as a comparatively more methodical and scientific writer than Brunfels.\(^{566}\) However, I am primarily interested in tracking the changes in the Latin, in particular in the cases of the herbs that Brunfels was compelled to describe in his own words without relying on or being influenced by his sources. There is an unfortunate gap between the vernacular names used by Brunfels and those used by Fuchs and later botanists. The fact that *Kuchenschell* and *Gulden Guntzel* are unattested in Fuchs, who was also German, shows that he either knew them by different names, or used the same ones as Brunfels but did not deem them worthy of inclusion in his own herbal. If so, it is likely that

\(^{565}\) In fact, Fuchs employed three different woodcut artists and had them combine images of certain plants at different stages of their life cycle into one, hyper-realistic image. Thus, an image of a flowering plant might also include withering leaves, etc. This resolves the issue of space in a printed text, eliminating the need for multiple images of one plant, but reintroduces the ancient problem of identification in the wild.

\(^{566}\) Fuchs himself has been heavily criticized by historians of botany, and his reputation as a rigorous scientist is only slightly better than Brunfels’.
Fuchs also was unable to match them to Greek and Latin plant names and that he had little or nothing to add or alter in Brunfels’ descriptions of them.

In order to understand how and why Fuchs described plants, his stance on Brunfels needs a brief discussion. This includes how Fuchs saw the relationship between his own work and that of his predecessor, and how he thought he was improving on what the latter had done. Fuchs could not ignore Brunfels’ influence, and therefore dedicated a considerable portion of his prefatory material to him. He calls Brunfels erudite (*eruditus*) and industrious (*plane φιλῶπονος*), and declares he was the first to “attempt to assist with and illustrate the field of medical herbs in Latin and thereafter in German writing” (*qui primum latino, dein etiam germanico scripto herbarium medicinam iuvare et illustrare conatus est*). He also, however, points out some of the mistakes in Brunfels, such as the lack of correspondence between text and image in a few cases, and he disparages the paltry number of plants included, which are only the ones “in common use” (*et vulgares tantum stirpes protulerit*). Finally, Fuchs complains that Brunfels uses plant names that are either mismatched (not their own) or illegitimate (*quodque saepe non suis et legitimis nominibus appellaverit herbas*). Fuchs is diplomatic in his stance on Brunfels, albeit somewhat condescending. He acknowledges the impact of the printer’s interference and incompetence on Brunfels’ text (*propter crebras ac multas typographi molestias*). Yet he twice states that these faults deserve pardon (*veniam merentur*), a possible reference to Politian’s assessment of the mistakes in Pliny as potentially harmful. It is almost begrudgingly that Fuchs admits that despite these flaws, Brunfels is deserving of praise because he recognized the importance of providing accurate and realistic images of the plants alongside their textual descriptions (Fuchs 1542: fol. 5r):

> quod ipse primus omnium rectam pingendarum stirpium rationem denuo in Germaniam nostram invexerit, aliisque hanc imitandi occasionem praebuerit.
For he himself, first of all [botanists], conveyed anew into our Germany the correct method of illustrating plants; and he offered to others this opportunity of imitating him.

Fuchs’ acknowledgment of the historical importance of Brunfels’ method of including lifelike images of plants in their descriptions is precisely the feature for which Brunfels would be remembered. It is difficult to say definitively whether this constitutes a dismissal by Fuchs. Certainly, his praise of Brunfels for this development is well-founded, but it is undermined by the implication that the use of realistic illustrations, which Brunfels did not wholly appreciate, is the only truly remarkable feature of the text. More pertinent is the description Fuchs provides of Brunfels’ subject matter, the “medicine of herbs”, about which Fuchs makes two claims. First, he says that Brunfels was the first German to write about herbs in Latin.567 This is not a literal claim. The ancient Roman and medieval authorities also wrote in Latin and Pliny himself made much of his own status as the first to do natural history in Latin. Rather, Fuchs is referring to his fellow Germans and the novelty of someone of Brunfels’ status producing such a text. Second, Fuchs says that the “medicine of herbs” had been nearly extinct in Germany, but that Brunfels had first made the attempt to drag it out of the shadows (cum constet Brunfelsium primum fuisse in Germania nostra qui herbariam medicinam propemodum extinctam e crassissimis eruere tenebris attentaverit). The latter part of this statement is a reiteration of Brunfels’ own claim that he brought the field of medicinal herbs into the light. But the claim that it was nearly extinct is

567 See above; qui primum latino, dein etiam germanico scripto herbarium medicinam iuvare et illustrare conatus est. The “later German” to which Fuchs refers is the German edition of Brunfels’ work, entitled Kreuterbuch, published in 1532 by a different printer, Egenolph, who reused the same prints created by Hans Weiditz. This printer was subsequently sued by the original printer, Schott. See Flechsig, N. 2017. Schottus adversus Egenolphum. Der erste “Urheberrechtsstreit” vor dem Reichskammergericht 1533/34. Nachdruckschutz gestern und heute. Passau-Wien: MUR Verlag. Flechsig delineates the details surrounding the legal case, in which Egenoloph argued that, in effect, the woodcuts could not be “copyrighted” because they depicted plants found in nature.
unclear. There were many, many herbals produced in the late Middle Ages and early
Renaissance, some in German, others in Latin. Again, Fuchs’ statement seems to be directed at
the German people, for whom this knowledge had been inaccessible in this specific format:
German medicinal herbs described in Latin. As a result, Fuchs thinks that Brunfels is “most
useful to posterity” (quam ut posteritati plurimum prodesset), and that his efforts in the field of
medicinal herbs should be reproduced in all other fields of study (aequi bonique faciendos
studiosis omnibus eius labores, qualescunque sunt, censeo). Fuchs acknowledges the
inventiveness of Brunfel’s herbal, and sees value in his methods, but is careful to describe his
subject matter as medicinal, not scientific. This positive estimation of Brunfels’ originality and
influence unfortunately did not extend historically past Fuchs, who borrowed extensively from
Brunfels, extending and improving on many of his ideas. But where Fuchs is given the benefit of
the doubt, Brunfels is usually shunted to the side and dismissed as unoriginal.

As the ratio operis for his own text, Fuchs cites cognitio (knowledge derived from the
ancients) and the pursuit of it. He declares that the reason he has produced his own herbal is that
the subject matter, plants, has since antiquity been considered not just pleasing and useful, but
actually worthy of study:

Idque partim quod vetustate, cuius maxima semper apud omnes autoritas et veneratio fuit,
esset antiquissima: partim etiam quod iucunda, utilis et necessaria eius esset cognitio. Fuchs acknowledges the
inventiveness of Brunfel’s herbal, and sees value in his methods, but is careful to describe his
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Partly for this reason, that in antiquity, it was most ancient thing for which there was
always the greatest authority and veneration among all people; and partly because
knowledge of it was pleasant, useful, and necessary.

569 Fuchs 1542: a2r.
Fuchs’s dedication is formulaic out of necessity, but this appeal to ancient authority and the use of religious terminology to describe it is typical of the tension in earlier botanists, between needing to justify their work to Christian audiences and sponsors, and wishing to establish the study of plants as knowledge-producing. It is also very similar to Brunfels’ own *ratio*, of recalling the herbal tradition from near extinction for the benefit of humankind. Given the similarities between the two texts and their near synchronicity, the implication is clear: Fuchs sees his own work as an improvement on Brunfels, and therefore more useful to posterity.

**Gauchblûm (Nasturtium agrestê)**

While discussing the *herbae nudae* and his frustration at not being able to identify them in the ancient sources, Brunfels had declared, *alii viderint* (let others deal with it). In fact, Fuchs did follow up on *Gauchblûm*, which he identifies as *Nasturtium agrestê*, or, *Hiberis* (ἡ καρδάμαντική or τὸ ἀγριοκάρδαμον in Greek). In similar fashion to Pliny, Fuchs provides a brief etymology of the Greek name ἀγριοκάρδαμον, namely, that its odor, leaves, and flavor are all similar to either *Nasturtium aquaticum* (which Dioscorides calls *Sysimbrium cardamine*), or to *Hortensis*, which the Greeks call *Cardamon*. The entry runs over three pages, in much the same style as Brunfels. The first page in Brunfels, however, shows the relevant illustration, then lists the nomenclature. In Fuchs, the first page starts with the title *De Hiberide*, which indicates that *Hiberis* is the name Fuchs has formally selected to signify the plant in question. Thus, the first part of the full entry is *Nomina*, and the first line refers to it as *Hiberis*, followed by the

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570 Brunfels 1530: 68.

571 Fuchs says that Pliny called it *Lepidion*, but the term cannot be found in modern editions of Pliny.
Greek nomenclature, then the Latin. Fuchs states that among the Greeks, it is called ἡ καρδαμαντική, ἡ ἀγριοκάρδαμον, or Lepidion in Galen and Paul. In Latin, it is called Nasturtium agrestе, but, and this is crucial, Fuchs includes the ablative Hiberide as a qualifier and adds the statement Officinis nostris incognita. Thus, the plant name Nasturtium agreste is not known in Germany, which explains Brunfels’ inability to map the German name to a Greek or Latin one. Yet even the name Hiberis does not show up in Brunfels, who is only aware of the German vernacular name Gauchblüm. Fuchs acknowledges this, stating (Fuchs 1542: 324),

Germanis Gauchblüm, non alia ratione quam quod plerosque qui in illius notitiam nondum pervenerunt, infatuet.

Gauchblüm must be preferable to Germans, for no reason other than that there are many who have not yet become aware of its renown.

Fuchs therefore sees the reasoning behind the retention of this name in Germany as nothing more than attachment due to ignorance. Those who use it only do so because they like it, and they like it because they have not yet “arrived” at acquaintance with either the herb or its broader reputation. They do not know enough about it to recognize it as Hiberis or any of the other names ascribed to it. Thus, in their ignorance, they promulgate the Germanic name, as though it were a different plant. But there is more to Fuchs’ reasoning. He goes on to explain the etymology of its various names, noting that Gauchblüm could also be called wilder Kress in German. This is a literal translation of the Greek names Cardamantice and Agriocardamum, which are given to it for three possible reasons: a) the scent of its root being the same as that of Nasturtium; b) its leaves being similar to those of Nasturtium aquaticum, which Dioscorides calls Sisymbrium cardamine, as well as being similar to Hortensis, which is called Cardamon in Greek; and c) the leaves resembling Nasturtium in flavor. A literal translation of Gauchblüm is Gauch (cuckoo, or Cuculus canorus) and Blum (flower), and Fuchs evidently thinks that this is
not descriptive of the actual plant; that, in fact, if one actually knows what it looks and tastes like, one would compare it to Cardamon or to other species of Nasturtium. If one were to do so, they would use a German name that reflects this and Fuchs has somewhat flippantly suggested wilder Kress. This leads Fuchs to the physical description (Forma) that is lacking in Brunfels (Fuchs 1542: 324):

Folia Nasturtio similia habet, verno tempore virentia, cubitali longitudine, aut minore, flore lacteo, radicibus duabus, sed una apud nos frequentius, nititur, odore Nasturtii quam acerrimo. Ex qua nimirum descriptione omnibus perspicuum sit, herbam cuius picturam exhibemus esse Hiberida: caulem enim cubitalem obtinet, foliaque Nasturtio similia.

It has leaves similar to Nasturtium, which flourish in spring, being a cubit in length or less, with a milk-white flower and supported by two roots, though one is more common in our regions, with the incredibly bitter scent of Nasturtium. Because of this description, it is no doubt evident to everyone that the herb whose image we provide is Hiberis, for it has a stem a cubit in length and leaves similar to Nasturtium.

In this case, Fuchs demonstrates the ablative constructions that would later define botanical Latin: verno tempore virentia, cubitale longitudine, aut minore, flore lacteo, radicibus duabus. These are in apposition to the main verb habet, which is in the present indicative, while the phrase odore Nasturtii quam acerrimo is subordinate to nititur, again in the indicative. This move away from the subjunctive is not just an indication of an increasing focus on objectivity, but a purposeful rejection of Brunfels’ rhetoric of hesitation and anxiety. Fuchs is not a reluctant botanist and he willingly takes up Brunfels’ charge to do the work he claims he cannot do. Fuchs is not, however, ready to reject Brunfels’ method of self-justification by way of referencing the authorities. Fuchs also cites Dioscorides, Galen, and Pliny, and includes the medicinal properties of the herb, not just its diagnostic features.

572 In his brief description of Gauchblüm, Brunfels (1530: 218) used velint and pellat, both subjunctives. See Chapter 4.

573 Under Vires, he cites Pliny for the fact that when formed into a paste, it is very useful for the hips and other joints in conjunction with a hot bath. (Fuchs 1542: 326).
The technique of description by comparison with another plant is ancient, and in fact, Fuchs’ entries follow a very similar formula to the one Brunfels used. Imprecision in naming is also an ancient problem, discussed by Pliny himself. In this entry, however, Fuchs does not provide a species name for the other plant called *Nasturtium*. This is either because he does not see the need for specification, or because the attributes he lists are common to all of the species of which he knows. This is complicated by the fact that Brunfels has an entry in his 1531 Appendix for a plant called simply *Nasturtium*, but he provides a different vernacular name: *Bressen*, not *Gauchblüm*.\(^{574}\) Thus, despite the criticisms Fuchs leveled at Brunfels, he is not any more precise in his nomenclature or any more consistent in his use of the binomial format. For instance, the remainder of the comparative portion of the entry on *Hiberis* shows that Fuchs was in fact aware of another species, called “Garden Nasturtium” (Fuchs 1542: 324-4):

> Quae enim a radice statim exeunt, aquatici, quae vero in supremo caule emicant hortensis Nasturtii folia referunt. Verno quoque tempore virent, flos denique lacteus est, hoc est, in albo purpurascens: hunc enim Dioscoridem vocare lacteum florem, satis testatur quarta Ranunculi species, cuius etiam flore, qui colore huic similis est, lacteum esse scribit. Semen quoque in siliquulis tam exiguum producit, ut, Plinio etiam teste, vix aspici possit radicem autem exilem atque acrem, cui inest Nasturtii odor.

Some leaves (those of the aquatic genus) in fact grow straight from the root and those that appear at the very top of the stalk call to mind the leaves of *Nasturtium hortensis*. They too flourish in the spring, and moreover, the flower is milk-white. That is, it is white with a purplish hue, for it is sufficiently attested that Dioscorides calls this flower “lacteus”, a fourth variety of *Ranunculus*, whose flower too, which is similar in color to this plant, he writes is milk-white. It also produces a seed in its pods that is so tiny that, as Pliny also attests, it can scarcely be seen; moreover, its root is sharp and narrow, and has the scent of *Nasturtium*.

In addition to the heavy use of ablatives, Fuchs deftly combines technical vocabulary (*radix*; *caulis*; *siliqua*), hypotaxis (“it is attested that”), and displays almost all of the same features of

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\(^{574}\) He borrows heavily from Dioscorides, Pliny, and Pandectarius in this entry. However, this is not the same plant as *Gauchblüm*. It is important to remember that *Nasturtium* is technically a generic name, and there are many species of plant that fall under its classification.
Brunfels’ Latin that were identified in the previous chapter. One seemingly minor point of difference involves the source of their identifying information. Brunfels simply describes what a particular plant looks like, whereas Fuchs frequently refers to his own illustrations. This tendency on his part hints at his own experience with the herbs in question. As a physician, he may grow some himself, but the form of others he may know only after drying or being prepared in various concoctions. In that case, he may need the illustrations that he commissioned from skilled artists. On the other hand, he may simply have such confidence in the quality of these illustrations that he is content to use them for his textual descriptions, or be anticipating his reader’s lack of access to the living plant or any specimens of it. Either way, Fuchs is far more aware of the usefulness of his illustrations than Brunfels was, and as a result, he actually cites them in his textual descriptions.

Following the sections Locus, Tempus, and Temperamentum, which detail the plant’s native regions and growth habits, Fuchs provides its Vires (medicinal benefits), taken from Dioscorides, then Galen, and then Pliny. Finally, he concludes the entry with an Appendix, in which he justifies his identification of Gauchblüm with Hiberis (Nasturtium agreste). He refers to “fairly recent herbalists”, which can only mean Brunfels, and remarks that they recommend using the herb, brewed in lixivium, to treat lice (Fuchs 1542: 326):

Recentiores herbarii eius herba cuius picturam damus usum probant contra pediculos si lixivio incoquatur.  

More recent herbalists recommend the use of this herb, whose image I provide, against lice, provided it is brewed in lixivium.

However, Fuchs does not mention Brunfels, despite the fact that he had also specified the distillation of the herb in lixivium. Fuchs then reasserts that this plant (Nasturtium agreste or

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575 This remedy is also found in Galen.
Gauchblüm) is *Hiberis*, and the evidence is that they have the same medicinal benefits (*ut iterum evidentissimum sit hanc herbam, eo quod Nasturtii facultates obtineat, esse veram Hiberida*).

This entire description is reminiscent of ancient descriptions, but the vocabulary is more technical than anything we have seen before. In another comparison with an herb described by Brunfels, Fuchs describes the form of *Solidago* (Fuchs 1542: 390):

> Caulem habet quadrangulam, lanuginosum, ex quo per intervalla folia bina ex singulis geniculis in extremitatibus laciniata, Menthae similia emicant. A medio caulis ad fastigium usque ex singulis foliorum alis, flores sex aut septem in purpureo coerulei exeunt. Radix illi subest lignosa, quae multas a se exiguas radices capillamentorum instar per terram late serpentes propagat.

It has a quadrangular and wooly stem, from which the leaves, which resemble those of Mint, grow in pairs at intervals from individual nodes and are fringed at the edges. Six or seven sky-blue flowers lined with purple spring from the middle all the way to the tip of the stem, all the way from each and every hollow of the flowers. It has a woody root underneath, which produces several narrower roots that resemble fibers, creeping broadly over the earth.

There is a noticeable difference between Fuchs’ vocabulary and Brunfels’. The latter has a complex medical vocabulary but uses more general botanical terminology, settling for, e.g., *folia*, *flores*, and *figura*. Fuchs employs more complex botanical terms, and has a separate section for the medicinal uses, called *Vires*. Botanical terminology aside, however, and despite Fuchs having advanced the field of the scientific study of plants well beyond Brunfels, there is a major point of convergence and similarity between the two: both Brunfels and Fuchs use terms such as *herbarius* and *medicus* to refer to those who have a professional interest in the identification and description of plants. They both continue to associate the study of plants with medicine. For example, further on in his entry on *Solidago*, Fuchs says that it heals wounds (*vulnera glutinat*)

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576 While *Consolida media* is the appellation upon which he has decided, it is more correctly known as *Solidago* (*Rectius tamen Solidago dicetetur*). This is one of the herbs for which Brunfels provides one of his *iudicia*. See Chapter 4 for a discussion.
and eliminates blood clots and bruises (sanguinis grumos ex casu, vel constusionibus, coactos in corpore deficiit). Fuchs’ vocabulary of healing (glutino and deficio, rather than sano or even curo) parallels the increased precision of his entry on the physical characteristics of the plant; quadrangulus, lanuginosus, geniculum (node; joint), propago, and laciniatus are all far more technical and specific to botany than the terminology of Brunfels.

In fact, Fuchs’ vocabulary is so new that he has provided a glossary of botanical terms before the index of Latin, Greek, and German names at the beginning of the book. Glossaries are now so ubiquitous that a modern reader does not immediately see the import of both its presence in Fuchs’ text and its position of prominence, but it was novel for a botanical text in 1542. Thus, in his entry on Sanicula, we are introduced to the neoteric botanical terms dissectum, capillamentum, fibrata, coliculum, and subnigris. Other terms in Fuchs are found in classical Latin, but their usage in his text has become far more regulated and formalized. In Fuchs, they mean something very specific. Examples of terms appropriated from classical Latin into botany include surculus, pusillum, rubens, ruber, capitulum, candidus, striatus, and oblongus. Eventually, in 1917 and 1966 respectively, Helen Choate and William Stearn would take the time to delineate the botanical meanings of such terms and render them in English. But as is clear from Fuchs, the development of a botanical Latin vocabulary, in which the terms have uses that are not obvious to those who do not have familiarity with or training in the study of plants, had already begun by the 16th century.

In Andrea Cesalpino’s De Plantis Libri xvi, published in 1583, there is also an entry for Nasturtium, in Book 8, cap. 70. Cesalpino’s text diverges from Brunfels and Fuchs in that he

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577 Another of the plants for which Brunfels provided a iudicium.

578 Fuchs 1542: 671-72.
does not provide any vernacular or alternative Greek and Latin names in his index at the
beginning of the text. In addition, his work is philosophical and as a result, at the beginning of
each book he has a short explanation of how the plants listed in that book have been classified
scientifically. Thus, all of the plants in Book 8 fulfill the following criteria (Cesalpino 1583:
318):

Quae bina feminis conceptacula ferunt, solitariis seminibus in singulis alveolis, paucae
sunt. Harum flos summo fructui insidet instar Ferulacei generis ut Rubiae, Agrimoniae:
aut fructus sine flore est; et flos sine fructu, ut Mercurialis Xanthii. Fructificant hae non
in umbellis, ut Ferulacea, sed aut sparsim in alis foliorum, et summis ramulis; aut in
capitulis, ut Pimpinella.

Those plants that have two pericarps (follicles), with solitary seeds in individual pitting,
are few in number. Their flower is situated at the very top of the fruit, in likeness to the
Ferulaceum genus, just as Rubia and Agrimonia. Either that or the fruit is without a
flower or the flower is without fruit, like Mercurialis Xanthii. These do not bear fruit in
the umbels like Ferulacea, but either scattered in the hollows of the leaves and at the very
tips of the branches, or on the heads, like Pimpinella does.

Thus, we know that Cesalpino has classified the genus Nasturtium according to its flower parts,
seeds, and growth habits. The actual entry for Nasturtium is in Book 8, ch. 70, and begins with a
description of the plant’s physical characteristics, with only one name in the vernacular provided,
which in fact is simply an orthographical difference: Mastorsium versus Nasturtium (Cesalpino
1583: 363):

Nasturtium, vulgo Mastorsium, feritur in hortis pro olere; nam crudum Erucae modo
venit in cibos, acri sapore, caulis ramosus est.

Nasturtium, called Mastorsium in the vernacular, is grown in gardens as a vegetable.
When raw, like Eruca (lettuce), it goes into food, and it has a sharp flavor and a stem
with many branches.

In the 40 years since Fuchs, the language of botany has progressed to the point that Cesalpino’s
entry on the same plant, although it employs the same method of comparison with other plants,
reads as far more technical. The vocabulary (conceptaculum; alveolus; ramulus; capitulum) is
not only more specific to botany, as opposed to medicine, than the terminology in Brunfels, but also shows a trend of diminution. Flowers are generally small in stature and their parts even more so. As a result, terms from classical Latin are furnished with diminutive suffixes to reflect the size of their new referents. This also is evidence of the advancements being made in scientific equipment. The closer the botanist can look at a plant specimen, the more details they can see and the more previously unknown parts need to be named. However, in solidarity with both Fuchs and Brunfels, Cesalpino is still tied to non-diagnostic features of the plant. A modern botanist does not need to know that *Nasturtium* is a foodstuff or that it is bitter to the taste.

In a significant departure from these three authors, Kaspar Bauhin (1560-1624) did consider himself a botanist. He uses the term *botanicus* in his 1623 *Pinax Theatri Botanici*, and even has a separate preface addressed to one, *Ad Lectorem Botanicum.* Yet Bauhin still aligns himself with the medical field and even declares that any botanist who wants an arsenal of medicaments to draw upon should become an expert in plants, animals, metals, and all terrestrial bodies that are known to have medicinal benefits. By studying these subjects, the botanist can distinguish between true remedies and fake ones (Bauhin 1623: 17):

> Quisquis (*inquit*) auxiliorum undique copiam habere volet, omnis materiae Stirpium, Animalium & Metallorum, tum aliorum terrestrum corporum, quae ad Medicinae usum ducimus, expertus esto, ut ex eis et exacta et notha cognoscat.

Whoever, so he says, wishes to have an abundance, in all respects, of [medical] aids, let him become an expert in the whole subject of plants, animals, and metals, and then of other terrestrial bodies that we consider of use for medicine, so that he may know from those both what is accurate and what is counterfeit.

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579 p.17ff.
There is a simple reason for this loyalty to medicine. Much like Pliny, Bauhin sees medicinal properties as innate, a part of a plant’s nature. Thus, in order to know a plant, one must know its uses.\textsuperscript{580}

Despite Bauhin’s adherence to the principles of medicine, his writing style is strikingly different from that of his predecessors. There is no entry for \textit{Nasturtium agreste}. However, in his Index, he lists as species under \textit{Nasturtium}, an \textit{Aquaticum} (104), \textit{Babylonicum Lob.} (109), \textit{hybernum Thal.} (99), \textit{hortense} (103), \textit{Indicum} (306), \textit{Maritimum Lugd.} (99b), and \textit{Montanum} (104b).\textsuperscript{581} There is a separate entry called \textit{Nasturt. Palustre Ges.} (99), with a \textit{Nasturt. Pratense Ges.} (104), and a \textit{Nasturt. Sylvestre Thal.} (105b). It is unclear from the nomenclature whether any of these correspond to \textit{Nasturtium agreste}. It is therefore necessary to start from the main entry, entitled \textit{Sectio Secunda: Nasturtium: Thlaspi: Bursa Pastoris: Myagrum: Draba: Alliaria: Cochlearia}, all of which are the genera about which the section deals. Thus, under the subheading \textit{Nasturtium Eiusque Species}, Bauhin states (1623: 103):

\begin{quote}

\textit{Nasturtium}, or \textit{Kardamom} in Dioscorides 2.c.185 and in Theophrastus 7. \textit{Historia} 1. It is like \textit{Cardamom} because it afflicts the head with its own heat and bitterness; or it is “from the heart” because it produces heart-shapes; or it is so-called because it is greatly valued
\end{quote}
for “heart skipping” (fainting). To the Latins it is *Nasturtium*, from the pain it inflicts on
the nostrils…. As to the types, Theophrastus (4.hist.7) says that there are many, but
Dioscorides writes only that *Nasturtium Babylonicum* is the best. Per Pliny (1.20.c.13),
there is *hortense*, that is, sown-by-seed, with broader leaves, and there is *sylvestre*. The
former is white and the latter is black, if we think that he is speaking of the seed. We
divide them into *hortense* (garden), *pratense* (meadow), *quaticum* (swamp), and
*montanum* (mountain).

One of the first things that strikes one in reading this entry is the increased efficiency of the
writing style, which is syncopated in much the same manner as Barbaro’s *Castigationes*. The
syntax is distinct, with so much ellipsis that it is not always obvious to which clause a verb
belongs. In addition, Bauhin abbreviates wherever possible, rendering the text inscrutable to
anyone unfamiliar with the ancient texts listed, or the plant names and plant parts. One detail that
stands out is Bauhin’s use of the term “genus”. Even by his time, the term had come to refer to a
taxonomic genus, but given the title of this section, he seems to be using it synonymously with
*species*. In addition, as the remainder of the section shows, Bauhin does not use the binomial
format. For each of the four categories listed above, he goes on to provide a number of
subspecies with names such as *Nasturtium pratense magno flore*. This style would later be
formalized by Linnaeus, who included in his definition of a binomial epithet a short diagnostic
phrase in the ablative, of no more than twelve words.\(^582\) There are no references to medicinal
benefits, which is peculiar, because if medicinal properties are essential characteristics of a plant,
one would expect Bauhin to list them. Bauhin does, however, explain the etymology of the
Greek and Latin names. By delineating the physical features of the plant that may have served as
inspiration for its name, the botanist is also providing useful information for identification of the

\(^{582}\) This would itself prove unwieldy and difficult to achieve, since twelve words is a very strict
limit. It would later be rejected in favor of a simple binomial consisting of genus and species,
and the diagnostic phrase would be separated out into the first paragraph of a published entry.
plant. Moreover, by referring to other authors, who do list the medicinal benefits of plants, Bauhin is both absolving himself of the responsibility to do so and saving space in his own text.

Bauhin proceeds to list the names of all of the kinds of Nasturtium that fit into each of the four categories; for each subspecies, he names the authorities whose descriptions of Nasturtium fit with that particular species. Thus, for Nasturtium hortense vulgatum, he adds that this corresponds to Nasturtium album in Pliny, to simple Nasturtium in Brunfels, and to Nasturtium hortense in Fuchs.\textsuperscript{583} Bauhin provides a short summary of the species (1623: 103):

\begin{quote}
Aliud est foliis simplicibus, quod laeve et albius, vel subhirsutum minusque album, aliud foliis valde divisis, et vel maius, vel minus.
\end{quote}

The one has simple leaves, and is either smooth and rather white or slightly hairy and less white; and the other has clearly divided leaves, and is either large or small.

Of Nasturtium hortense crispum he says that it is “both broad and narrow of leaf, and each variety is described and depicted in Matthiolius.”\textsuperscript{584} The next category of Nasturtium is pratense, and Bauhin aligns the subspecies Nasturtium pratense magno flore with Flos cuculi in Brunfels and to Hiberis and Nasturtium agreste in Fuchs. This is crucial, because it shows that Bauhin is primarily linking names to other names, and is not necessarily engaged in careful analysis of each species of the plant. Hiberis and Nasturtium agreste are the same plant in Fuchs, and so it should have been sufficient for Bauhin to link it to the name in Fuchs’ index. Yet he wants to be as precise and thorough as possible, and since Fuchs uses the two names somewhat interchangeably, Bauhin is careful to list them both. Of this species, Bauhin simply states that its

\begin{quote}
Nasturtium pratense magno flore is Flos cuculi; and Nasturtium sylvestre Osyridis folio is Bursa pastoris minor. Nasturtium bursapastoris was published in Roth Tent. Fl. Germ. 1: 281 (1788).
\end{quote}

\begin{quote}
Bauhin 1623: 104. Est latifolium et angustifolium, utrumque in Matth. Descriptum et depictum... He is referring to Pietro Andrea Gregorio Mattioli (1501-c.1577), a medical botanist and author of the Discorsi (1554) on Dioscorides’ De Materia Medica.
\end{quote}
flower is usually light in color, and very pale purple, but that sometimes it is straightforwardly white (flos communiter ex candido, leviter purpurascit, aliquando prorsus albus est). Of the remaining subspecies of Nasturtium, only a few others correspond to plant names in either Brunfels or Fuchs. Nasturtium aquaticum supinum corresponds to Sisymbrium Cardamine in Fuchs; and Nasturtium sylvestre Osyridis folio corresponds to Bursa pastoris minor in Brunfels and to Thlaspi angustifolia in Fuchs; Nasturtium sylvestre tenuissime divisum corresponds to Nasturtium sylvestre in Fuchs, but also to Seriphium absynthium in Fuchs. Thus, while Bauhin’s use of Latin diverges from that of the 16th-century herbalists, his techniques and assumptions do not. Like Brunfels, Bauhin is engaged in a process of verification. He is trying to make sense of the jumble of Greek and Latin plant names and to identify which ones refer to the same plant, and in which authors. Like most of his predecessors, he considers medicine and botany to be related fields.

By the 18th century, the Latin used to describe plants had continued apace in its formalization of vocabulary, syntax, and style. However, all traces of medicine and medical terminology had completely disappeared. Of the concerns of Pliny and the 16th-century botanists, one of the few characteristics that remained was the idea that experience led to knowledge. Thus,

585 Bauhin 1623: 104.

586 In the particular physical copy of Bauhin consulted, a reader has helpfully cross-referenced Bauhin’s entries to those in Linnaeus. Thus, Nasturtium hortense latifolium, Nasturtium hortense vulgatum, and Nasturtium hortense crispum are all, per the marginal annotations, Lepidium sativum L. Meanwhile, Nasturtium pratense magno flore is evidently Cardamine pratensis, whereas L. Nasturtium aquaticum supinum is Sisymorium nasturtium L. Finally, Nasturtium sylvestre Osyridis folio is Lepidium rudarab L. Note the similarity of Lepidium to Lepidion, which Fuchs claims is the name used by Pliny and Galen.
in the 2nd edition\textsuperscript{587} of \textit{Genera Plantarum} (1743), Linnaeus states in his prefatory remarks that he has been taught by hard work and dedication (\textit{labor et studium}), with which he, who is tried and tested in things (\textit{expertum rebus docuere probatum}), has occupied his days (\textit{quibus otia longa dierum postposui}). This cannot be taken as a direct criticism of Brunfels or Fuchs, who wrote two centuries before Linnaeus. Rather, Linnaeus is addressing the long and winding, utterly confused history of his discipline, and stating once and for all that any student of botany as a science must, once they have learned from it what they can, turn their gaze away from this history and rely on their own hard work and effort. There is a level of irony here, because Pliny had made a similar argument in favor of experience instead of learning from books. But there is a crucial difference: Linnaeus is intent on looking forward and leaving behind any plants that are already known, named, and described, as long as this has been done accurately and in accordance with his own method and criteria. In the future, any plant description is to be novel, not in style or in the nature of the contents, but in terms of the plant in question.

There is no entry for \textit{Nasturtium} in Linnaeus’ \textit{Genera Plantarum}, although he does link \textit{Lepidium},\textsuperscript{588} the name given to \textit{Nasturtium agreste} by Galen and Pliny according to Fuchs, to \textit{Nasturtium} in Cresson and in “Tournef 102. Sisymbrium” under Didynamia > Gymnospermia.\textsuperscript{589}

The first entry for Sisymbrium reads (\textit{GP} 1743: 247):

\begin{quote}
CAL. \textit{Perianthium} tetraphyllum: \textit{foliolis} lanceolato-linearibus, patentiusculis, coloratis, deciduis.
COR. tetrapetala, cruciformis. \textit{Petala} oblonga, erecto-patentia, calyce saepius minora, unguibus nimis.
\end{quote}

\textsuperscript{587} In one physical copy (Parisiis, sumtibus M. A. David), a librarian has corrected it to 3rd edition. Also, in his \textit{Ratio Operis}, he cites Tournefourt specifically as his main inspiration and authority.

\textsuperscript{588} \textit{GP} 1743: #645, p.238.

\textsuperscript{589} \textit{GP} 1743: xxiv.
STAM. *Filamenta* sex, calyce longiora: quorum *duo opposita* paulo breviora. *Antherae* simplices.


PER. *Siliqua* longa, incurva, teree, bilocularis, bivalvis: *valvulis* disseipimento paulo brevioribus.

SEM. plurima, parva.


Hinc *Calyx et Corolla* in hoc genere *patentia*.

The categories through which Linnaeus proceeds are the ones he had delineated in his *Ratio Operis*; they constitute the flower parts used for plant classification. Where Bauhin adopted a syncopated writing style that was heavy on abbreviations and simplistic grammar and syntax, Linnaeus has dropped all pretense and used exactly and only as many words as are necessary to make his point. He lists the parts that are used to diagnose the plant genus and describes each of them on their own line, thus distinguishing plants in this category from others. The vocabulary is also no longer simply “more technical”. It is exclusively botanical. Thus, the calyx is described as having a perianth that is *tetraphyllus*, with leaflets that are *lanceolatus-linearis*, *patientiusculus*, *coloratus*, and *deciduus* (four-leafed; with leaflets that are straight and pointed, but broad and colored, and which shed in season). Stylistically, he does not compare most of the parts (*calyx; corolla; stamen; pistillum; pericarpium; semen*) to other plants. Rather, he states the features of each one, using botanical terminology and ablatives of manner and description. There are almost no verbs and those that do appear are almost invariably in the indicative. Under the notation OBS (observations), he uses complete sentences with neutral word order, either stating further details about the structure of the species in question or explaining how it can be distinguished from others. This formula (“species 1 is distinguished from species 2”) was copied from Linnaeus to such an extent that by the 20th century it had become a *de facto* rule for composition of botanical diagnoses.
Linnaeus’ writing style is not, however, simply an advancement of Bauhin’s style. Linnaeus is able to write in such an efficient manner, using so much notation, because the plants in his books are already known to his audience. In fact, at the beginning of *Genera Plantarum*, there is a section called *Quaerenda* that is addressed to his readers, whom he assumes to be fellow botanists. Here, he lists a number of plant genera about which he is unsure of the proper classification. Were Linnaeus solely engaged in a project of transmitting his own *cognitio* about plants to his readers, he would have no need of such a dialogue with his readers. Nor would there be any need for it were he engaged only with the works of prior botanical authorities. By inviting the opinions of his readers, Linnaeus makes it clear that *cognitio* about plants is both communal and dynamic. At the same time, the process of classification, naming, and knowing relies on the prior knowledge of the community of botanists. This is why Linnaeus uses the adjective *nota* to refer to plants (*vegetabilia*). He is not introducing new species to the world. Rather, he is honing the ways in which plants are already known.

Many historians of botany have dismissed Brunfels under the assumption that he regurgitated the writings of his predecessors. Yet the ways in which Linnaeus and his contemporaries thought and wrote about plants were the outcome of a slow, simmering progression from the Latinity of Brunfels. It does not follow from the fact that Brunfels’ work was superseded by his successors that it has no bearing on the development of the discipline of botany. The ways in which Latin was used in the discipline were codified over time, until in the 20th century an international governing body instituted rules based on the turns of phrase, syntactical constructions, and vocabulary already employed by the community of botanists in Europe. Thus, the mere fact that Brunfels contributed to the discipline and did so in the Latin

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590 *GP* 1743: xxxi-xxxii.
language, is significant. Broadly speaking, therefore, there are two categories into which Brunfels’ contributions to the development of botanical Latin fall. First, by writing in Latin about German plants (or plants known in Germany, with German names), he showed fellow German physicians and scholars that the language in which the Italian humanists wrote, communicated, and engaged in debate was accessible to them. Moreover, he demonstrated the real-life implications of the philological disputes in which the Italian humanists were engaged. The stabilization of Pliny’s text over the course of several printed editions, which culminated in Ermolao Barbaro’s 1497 edition, was significant for a physician like Brunfels, living and working in Germany. Brunfels himself, through experience, already knew of the medicinal benefits of the plants included in his herbal. Yet he recognized the need to lend credence and authority to his entries by means of lifelike illustrations, by referencing ancient and medieval authorities, and by writing in a language long associated with classical scholarship.

Brunfels’ second category of influence therefore involves his overall methodology. His main goal was to verify his cognitio of medicinal herbs by mapping their German names onto Greek and Latin names. He began with the idea that his own knowledge of these plants was not sufficient. But when confronted with certain herbs that he planned to include in his herbal, he realized that his own experience with them was valuable information. This prompted him to hesitantly describe them, which in turn induced Fuchs to attempt to follow up on them. Brunfels’ declaration that others could deal with the intricacies of plant identification (alii viderint) began as a shifting of responsibility and a self-positioning as unqualified to make final judgment calls. Yet even in his own volume, this attitude eventually transmuted into a reluctant acknowledgment of the value of his own experience and observations. Where these could not be relied upon, Brunfels settled on asking his readers to make their own decisions. In this way, Brunfels’ herbal
functioned as an *allelopoietic* supplementation: in the case of certain herbs, he could not simply reconstruct the opinions of the authorities and therefore had to insert his own *iudicium* for his readers. This crowd-sourcing was appropriated by Linnaeus, in whom it became a communal effort. In Brunfels, the rationale behind this appeal to his readership was still informed by the moral component of his work. As a physician, he saw the accuracy of his herbal as a moral issue. He could not be responsible for misinformation that lead to the harm of a patient. In Linnaeus, the confusion of plant nomenclature and its attenuating issues of correct identification and description had simply become a scientific problem to be resolved.

In the preceding chapters, I have argued for the relevance of a long-ignored 16th-century herbal. My aim has not been to draw a single, causal line between Brunfels and the kind of botanical Latin seen in Linnaeus. Rather, I have aimed to highlight the features of Brunfels that have been overlooked, and which look backward (to Pliny and to the 15th-century printing history of his text) as well as forward (to Fuchs, who directly cited Brunfels). From Pliny, it is possible to continue the backwards regression and further investigate his Greek, Egyptian, Persian, and other influences. In Fuchs, it is possible to continue the forward momentum and identify all of the botanists whose works were influenced by him. The links to Linnaeus from Fuchs are easy to establish. Both options, of looking further and further back or further and further forward, are entirely compatible with transformation methodology. The various *allelopoietic* loci that make up a transformation are all points on a three-dimensional continuum that looks simultaneously forward and backward, up and down, side to side, inside and out. The particular iteration of botanical Latin that developed in the mid-late 20th century is just one point on this continuum. I have shown in this project how several other loci of transformation relate to this one. Like any language, botanical Latin was dynamic, not static. However, the more it was
stabilized in the *International Code of Nomenclature for algae, fungi, and plants* (ICN), the less versatile it became, and the less intelligible. Thus, the 1935 rule requiring the composition of diagnoses in Latin instigated a transformation of botanical Latin. In 2011, a further transformation occurred, with the rejection of the 1935 rule. This has accomplished much to make current botanical literature accessible and intelligible to people, as in the definition Linnaeus provided of a botanist as one who knows how to assign similar names, which are intelligible to everyone, to similar plants. Yet the International Botanical Congress (IBC) continues to regulate the formation of botanical nomenclature, which must still be in Latin. In light of the waning of Latin as the *lingua franca*, there is an obvious disconnect between Pliny’s and Linnaeus’ calls for universal intelligibility and the current circumstances surrounding botanical nomenclature. Botanical names have simply become unintelligible to most people.

There is an ongoing debate about this nomenclatural rule and many botanists are arguing for the removal of Latin names entirely. In addition, the names of colonizers are still memorialized in many plant names, while indigenous names have been deprivileged. Wright & Gillman (2022) have argued that the Latin names of some plants should be replaced with their indigenous names, noting that (2022: 6):\(^{592}\)

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\(^{591}\) Smith & Figueiredo (2022) have argued that in many cases the use of personal names in nomenclature encodes the effects of colonialism, citing, for example, the genus *Hibbertia*, which commemorates George Hibbert (1757-1837), an English politician and merchant, and a slave-owner who opposed the Act for the Abolition of the Slave Trade of 1807. Thiele et al. (2022) argue that such names violate article 51 of the 2018 *ICN* (Shenzhen Code). Critics such as Mosyakin (2022a, 2022b) have claimed that renaming such genera creates a slippery slope, arguing that if *Hibbertia* must be renamed, then so too must other genera such as *Banksia*, named after Joseph Banks (1743-1820), the English naturalist and botanist and long-time president of the Royal Society.

Names are important to people; they affirm a sense of place, belonging and history. A process that replaces existing legitimate names with their earlier indigenous counterparts is in our view also important for the affirmation of Indigenous Peoples’ knowledge of species and their ecology.

By replacing vernacular names with Latin ones, which Linnaeus formalized in the 18th century, the very act of naming, and therefore of referring to, plants became a colonial act. Formal, scientific botanical (Latin) plant names are only “known” to plant biologists and to amateur botanists or professional gardeners who have taken the time and effort to memorize them. The common names by which people have long referred to plants have been deprivileged with the result that “knowledge” of botanical nomenclature is fundamentally exclusive. But it does not follow from the fact that an individual does not know the formal scientific name of a plant, that they do not know the plant itself. The changes currently underway in the field of botany are, I argue, part of yet another transformative process, the result of which will involve a turn away from Latin nomenclature and towards an understanding of knowledge and knowability that acknowledges the limitations of the ideal of universal intelligibility. The arguments put forth against honorifics and for reversion to indigenous names do not assume this ideal. Rather, they assume a conception of knowability and the transmission of knowledge about plants that is moral, not scientific. Thus, modern botanists, in pushing back against the rules for expression in

593 See extensive lists of indigenous plant names in Turner, N.J. 2014. “Appendix 2. Names of Selected Native Plant Species in Indigenous Languages of Northwestern North America.” In Ancient Pathways, Ancestral Knowledge. Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America. McGill–Queen’s University Press. Compare this current debate with Tore Janson’s statement (2004: 156) that Latin will likely continue to be used for botanical nomenclature because “there is simply nothing else that works as well.” Janson does at least acknowledge that prior knowledge of Latin is helpful in understanding binomials and that many post-Linnaean names are nonsensical.
their field, have come full-circle, wrestling with similar philosophical issues as did Pliny the Elder, and even Otto Brunfels in 1530.

A plant name does not need to be universally intelligible in order to be discoverable or knowable. By removing the Latin requirement for publication in 2011, the IBC recognized this fact for scientific diagnoses. The same issues apply to botanical Latin nomenclature: if any degree of intelligibility is to be attained, botanists will need to go further than proposals to reject particular names. They will need to consider what it would take to de-Latinize their entire system of nomenclature, and whether or not doing so will resolve the current impasse. This will also constitute a new transformation of botanical Latin, in which the limitations of universal intelligibility are recognized, namely, that knowledge of a plant is not dependent on any particular system of nomenclature. If we return to the plant Gauchblüm and reconsider it in light of the ideal of universal intelligibility and the botanical community’s continued adherence to Latin binomial epithets, we can see the philosophical issue at hand. Brunfels himself knew the plant Gauchblüm. He knew what it looked like, what its medicinal properties were, and how it grew. The vetulae and herbarii of Germany also knew the plant. None of this is negated by the fact that it had no known Greek or Latin name. Fuchs may have identified it, but even that name fell into disuse: Nasturtium agreste is no longer a recognized formal botanical name. Linnaeus recategorized it in 1753 as Cardamine pratensis, although he did not describe it. Rather, he simply noted its earlier names, including those provided by Bauhin. He did not mention either Fuchs or Brunfels, despite the fact that it was the latter’s frustration with identifying it and the

594 It is true that by replacing Latin names with English or indigenous names, the same issues might inevitably arise. In the case of the former, we are likely to encounter a new lingua franca eventually; in the latter case, it is also possible to argue that exclusivity is still a problem.

former’s attempt to do so that led to its classification and description in later works. If the field of botany eventually does away with Latin nomenclature, it will be left with an extensive catalog of names that need review, some of which may revert back to indigenous and vernacular names. If so, the influence of Brunfels’ *herbae nudae* on the botanists who succeeded him will become even more apparent. Had Brunfels been able to identify them, and provide them with Latin names, they might still have been unintelligible to many people. The formality of their Latin names could in fact have rendered knowledge of them inaccessible to the very people to whom Brunfels owed much of his own *cognitio* about plants.
Glossary of Botanical Terms

Abbreviations:

GDBL - The Missouri Botanical Garden’s *Grammatical Dictionary of Botanical Latin* (online).

Acute: (Of the teeth of a leaf): narrowed gradually and making an angle of less than 90 degrees. (*BL*)

Alveolus: A small cavity, hollow or pit; “a cell or compartment of a honeycomb” (*WIII*); (fungi) “a small cavity” (*S&D*); (algae) “the pit-like markings on the valves of many Diatomaceae.” (*GDBL*)

Anther: The terminal portion of a stamen of a flowering plant. The pollen sacs containing pollen are borne on the anther. (*DPS*)

Apical: Relating to the apex or tip; “at the point of anything” (*Lindley*); (fungi) “(of the stipe) pertaining to the portion near the pileus; referring to the apex” (*Snell & Dick*).’ (*GDBL*)

Appressed: Lying close and flat and pointing toward the apex of the plant or structure, usually referring to leaves growing up against the stem. (*BL*)

Basin: The depression at the apex of the anther. (*DPS*)

Betonica: a. Variant of *Vettonica*, name of a plant which grew in Spain. (*DPNG*)
b. Vel *betonia* vel *vetonica*, *cestros* vel *cestrum* idem. Gall. *betoine*, anglice *betonike*. Item *cistronidum*, ut in Alex. de splenis, idem. *Habet folia ad modum urtice sed viridiora sed non pungencia et florem indum et boni odoris [est valde].* (*MBG*)

Binary combination or epithet: A generic name combined with a specific epithet to form a species name. Article 23.1. The name of a species is a binary combination consisting of the name of the genus followed by a single specific epithet in the form of an adjective, a noun in the genitive, or a word in apposition (see also Art. 23.6). If an epithet consisted originally of two or more words, these are to be united or hyphenated. An epithet not so joined when originally published is not to be rejected but, when used, is to be united or hyphenated, as specified in Art. 60.11. (*ICN*)

Binomial: Binary nomenclature, in which the name of a species consists of a generic name
and a specific epithet, e.g., *Rosa alba* (BL).

**Bituberculate:** Covered with wart-like projections. (*BL*)

**Calyx:** A collective term for all the sepals of a flower. (*DPS*)

**Capitulum:** An inflorescence that consists of closely packed flowers or florets which have no stalks and arise on a flattened axis, all at the same level. The capitulum is surrounded or subtended by an involucre of bracts giving it the appearance of a single flower. Capitula are typical of the Brassicaceae. (*DPS*)

**Carnosus:** Fleshy, succulent, soft but firm. (*BL*)

**Carpel:** One of the female reproductive organs of the flower, i.e., a unit of the gynoecium, comprising an ovary (containing 1 to many ovules borne on a placenta) and with a usually terminal style tipped by the stigma. (*DPS*)

**Circinate:**

a. Coiled inwards from the tip. (*BL*)

b. Rolled lengthwise. (*DPS*)

**Conceptaculum:** An urceolate (flask-shaped) cavity in which gametes are formed. It is found inside the inflated tip of the thallus of certain brown algae (e.g. Fucales), and has a small opening called the ostiole. (*DPS*)

**Coriaceous:**

a. Leathery. (*BL*)

b. Having a leathery texture. (*DPS*)

**Corolla:** A collective term for all the petals of a flower. The corolla is a non-reproductive structure, often arranged in a whorl. It encloses the reproductive organs and, with the sepals when present, protects them. Petals are often brightly coloured and attract pollinating animals. (*DPS*)

**Deciduous:** Applied to parts of a plant or animal that are shed seasonally (e.g., deer antlers, leaves of certain plants), to trees that shed their leaves seasonally, and to the perianth of a flower if this is shed after fertilization. In trees, this is not an indicator of taxonomic status; although deciduous trees are generally angiosperms, some (e.g., larch) are gymnosperms. (*DPS*)

**Diagnosis:**

a. A botanical or zoological diagnosis is a brief statement of the distinguishing features of an organism. (*BL*)

b. Article 38.1. In order to be validly published, a name of a new taxon (see Art. 6.9) must (a) be accompanied by a description or diagnosis of the taxon (see also Art. 38.7 and 38.8) or, if none is provided in the protologue, by a reference (see Art. 38.13) to a previously and effectively published description or diagnosis (except as provided in Art. 13.4 and H.9; see also Art. 14.9 and 14.14); and (b) comply with the relevant provisions of Art. 32–45 and F.4–F.5.
Article 38.2. A diagnosis of a taxon is a statement of that which in the opinion of its author distinguishes the taxon from other taxa. (ICN)

**Description:** Article 38.2. *Note* 2. Whereas a diagnosis must comprise one or more descriptive statements (Art. 38.2 and 38.3), a validating description (Art. 38.1) need not be diagnostic. Article 38.3. The requirements of Art. 38.1(a) are not met by statements describing properties such as purely aesthetic features, economic, medicinal or culinary use, cultural significance, cultivation techniques, geographical origin, or geological age. (ICN)

**Diplostemonous:** Having twice as many stamens as petals, the stamens of the outer whorl opposite the sepals, the stamens of the inner whorl opposite the petals. (%BL)

**Fungous:** Spongy. (%BL)

**Gamete:** A specialized haploid cell (containing 1 of each type of chromosome; sometimes called a sex cell) whose nucleus and often cytoplasm fuses with that of another gamete (from the opposite sex or mating type) in the process of fertilization, thus forming a diploid zygote. (%DPS)

**Glabrous:** Smooth, lacking hairs. (%DPS)

**Gynoecium:** The collective term for the female reproductive organs of a flower, comprising 1 or more carpels. (%DPS)

**Hexameric:** With parts in sixes. (%BL)

**Hypanthium:** A cup-like or tube-like enlargement of the floral receptacle or base of the perianth that surrounds the gynoecium and fruits. (%DPS)

**Inappendiculate:** Not appendiculate, i.e., not having small hanging appendages. (%BL)

**Inferior (ovary):** Applied to an ovary when the other organs of the flower are inserted above it. (%DPS)

**Inflorescence:** A flowering structure that consists of more than a single flower. (%DPS)

**Lanceolate:** Broad, but tapering to a point at both ends, like the blade of a lance. (%DPS)

**Lixivium:** A solution of alkaline salts from wood ashes, or any solution produced from the lixiviation process, i.e., separating soluble and insoluble compounds via percolation.

**Nasturtium:** a. From L. *nasus tortus*, a twisted nose, due to the plant’s pungent taste. Specific
epithet of water-cress (*Rorippa nasturtium-aquaticum*). The plant familiarly known as *Nasturtium* is *Tropaeolum* (q.v.). (*DPNG*)

**Obovate:** Applied to a leaf that has the stalk at the narrow end, the leaf widening towards the tip. (*DPS*)

**Ovary:** Of a plant, the gynoecium. (*DPS*)

**Pedicel:**
- a. The stalk of a fruit or leaf. (*BL*)
- b. The stalk of one flower in an inflorescence. (*DPS*)

**Peduncle:**
- a. The stalk of a solitary flower or of an inflorescence (the pedicel, q.v., is the stalk of a single flower within an inflorescence, or also it is of a single flower in the spikelet of a grass); also once used of the seta in mosses (Mitten 1869) and *hepaticae*; “a primary flower-stalk, supporting either a cluster or a solitary flower” (Fernald 1950). (*GDBL*)
- b. The inflorescence stalk of a plant. (*DPS*)

**Perianth:** Of a flower, the outer covering, composed of the floral leaves, usually an outer greenish calyx, and an inner, brightly colored corolla. (*DPS*)

**Pericarp:** The fruit wall, often with 3 distinct layers, endocarp, mesocarp, and outer exocarp. (*DPS*)

**Personata:** *Personacia, lappacium maius* idem. (*Personata* is so-called from the large leaves Of the Burdock, which resemble a mask (*persona*). (*MBG*)

**Petiole:** The stalk by which a leaf is attached. (*DPS*)

**Physeterostemon:** Genus name meaning “having a stamen that resembles the head of a sperm-whale.” (Goldenberg & Amorim 2006: 966).

**Pistillum (pistil):** The gynoecium of a syncarpous (concrecent carpels) flower; each carpel in an apocarpous (free carpels) one. (*DPS*)

**Ramulus:** A branchlet. (*BL*)

**Rugose:** Wrinkled; bearing many ridges. (*DPS*)

**Sepal:**
- a. In a flower, one of the outer floral leaves, usually greenish, which are borne in a tight spiral or whorled. (*DPS*)
b. Division of a calyx (Lindley). \((GDBL)\)

**Stamen:** The male organ of a flower, comprising a stalk (the filament) and the anther which is commonly 2-lobed, the lobes united by the connective. \((DPS)\)

**Stigma:** The part of the female reproductive organs on which pollen grains germinate. \((DPS)\)

**Stipule:** An outgrowth, usually occurring in pairs, at or near the base of a leaf petiole. Stipules may be leaf-like, hard and sharply pointed, sheath-like and protecting the young leaf, or adpressed to the petiole or twig. Occasionally stipules are amplexicaul (i.e., surrounding the clasping of the twig). These uncommon positions are valuable aids to plant identification. \((DPS)\)

**Style:** An extension of the carpel which supports the stigma. \((DPS)\)

**Taxon:**
- a. A taxonomic group at any rank. \((ICN)\)
- b. A group of organisms of any taxonomic rank, e.g., family, genus, or species. \((DPS)\)

**Thallus:** A primitive type of vegetative plant body that is not differentiated into stems, leaves, and roots, although analogous structures may be present. The term is used mainly of non-vascular plants, e.g., algae, fungi, lichens, and liverworts. \((DPS)\)

**Theca:**
- a. lit. ‘a case’, hence applied to the sporangium of a fern, the lateral half of an anther, the capsule of a moss, the ascus of a lichen, etc. \((BL)\)
- b. The shell-like structure surrounding the cell in certain algae. \((DPS)\)

**Tomentose:** Woolly; covered with a fine mesh of hairs. \((DPS)\)

**Tribe:** In plant taxonomy, a rank between family and genus, comprising genera whose shared features serve to distinguish them from other genera within the family. The names of tribes bear the suffix \(-eae\). Tribes may be grouped to form subfamilies and divided to form subtribes. \((DPS)\)
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Appendix: Features of Botanical Latin 596

The current scientific term for any group of organisms traditionally studied in botany is *taxon*. This can be a family, a genus, a subgenus, a species, and so on. The primary, and obligatory, components of the publication of a new taxon include the name of the group of organisms, the technical diagnosis, and the description. Of these, the *ICBN* dictates the formation only of the name, for which the Linnaean rule of binary epithets still holds. Therefore, the name of a taxon consists of two parts, the generic name, which is always capitalized, and the specific name, which is not capitalized. In the *ICBN*, Linnaeus’ binary epithets are known as *binary combinations*, but apart from this, they are almost identical in form to his original nomenclatural recommendations.

A botanical diagnosis is a technical phrase, as short as possible, which is required for publication and must distinguish the taxon from others at the same botanical level. It is, basically, “a brief statement of the distinguishing features of an organism.” 597 Traditionally, the diagnosis has consisted of as few words as possible. Other defining properties of the organism may also be included and over time the explication of these came to be known formally as *descriptions*, to distinguish them from the primary diagnosis. The syntax of diagnoses was generally defined by secondary phrases in the ablative, dependent on the binary epithet, whereas the description, especially if it were lengthy, often employed the nominative case. The use of the nominative in the description instead of the ablative became more prominent in the 20th

596 See the Glossary of Botanical Terms for technical vocabulary in this Appendix.

597 Stearn 1966: 143.
century,\textsuperscript{598} when authors knew less and less Latin and had to consult manuals more and more in order to compose diagnoses. Thus, where the ablative was originally used to \textit{diagnose} the taxon, and the nominative to \textit{describe} it, 20\textsuperscript{th}-century botanists began using the nominative for diagnoses as well.\textsuperscript{599} In addition, the vocabulary of botanical Latin has changed drastically, with the introduction of increasingly precise terms that reflect the more sophisticated equipment available to modern botanists.\textsuperscript{600} As a result, a modern diagnosis might be syntactically and grammatically quite simple, but the vocabulary is inscrutable to a layperson. Ultimately, botanical Latin is a specialized language that, because of its role in scientific expression, cannot readily be understood outside of that context.

By the mid-20th century, the formal scientific diagnosis of a plant taxon consisted of a series of paratactic ablative constructions, in which the ablatives were meant to distinguish the taxon from others in the same group. For example, in the 2006 entry for the new genus \textit{Physeterostemon}, the authors explain its distinction by reference to the features of its flower parts and stem (\textit{Taxon} \textit{55}: 966):

\begin{quote}
\textit{Physeterostemon} R. Goldenb. & Amorim, gen. nov. - Type species: \textit{Physeterostemon fiaschii} R. Goldenb. & Amorim

\textit{Hoc genus novum quoad tribum incertae sedis. Ab omnibus aliis generibus Melastomatacearum floribus hexameris et diplostemis, calyce persistenti, ovario infero, fructibus siccis, et staminum connectivo dorsi apicali incrassato haud prolongato infra antherarum thecas et ad basin inappendiculato vel minute bituberculato facile diagnoscitur.}

This is a new genus of uncertain placement with respect to tribe. From all the other genera of the Melastomataceae, it is easily diagnosed by its hexameric and diplostemonous flowers, by a persistent calyx, by an inferior ovary, by its dry fruits, and
\end{quote}

\textsuperscript{598} McNeill 1997: 753.

\textsuperscript{599} Stearn 1966: 144.

\textsuperscript{600} Stearn 1966: 16.
by the connective apical of the back of the stamens, which is thickened but does not extend below the thecas of the anthers and, towards the basin, is inappendiculate or minutely bituberculate.

Given that this is a new genus, it needs a type species as well, which the authors distinguish from *P. jardimii* with the same kind of ablative construction (*Taxon* 55: 967):

*Physeterostemon fiaschii* R. Goldenb. & Amorim, sp. nov.

*Haec species nova a P. jardimii hypanthio eglanduloso et ovario glabro praecipue differt.* - Latin attributed to one Dr. William A. Rodrigues.

This new species chiefly differs from *P. jardimii* by virtue of its non-glandular hypanthium and its glabrous ovary.

This entry is typical of modern botanical Latin, especially the citation of the Latinist with whose help the authors were able to compose their diagnosis. According to the 2018 *ICN*, the publication of a new taxon must include not only its *binary combination*, but also the authors and a notation that indicates whether the taxon is new or is simply being renamed or reclassified. In this entry for the genus *Physeterostemon*, the *ICN* also requires that a type species be indicated, in this case *P. fiaschii*. In the genus entry is the notation “gen. nov.,” for *genus novum*, indicating that the taxon is newly discovered. As such, the species entry uses the notation “sp. nov.” for *species nova*. Each of the Latin passages is a proper, scientific diagnosis. For the genus, it concisely explains how, by reference to the parts of the flower, it is distinguished from the other genera of the same plant family, the Melastomataceae. It is also highly technical and makes heavy use of the ablative to form complex secondary phrases. Such a diagnosis is difficult even for a classicist to understand. For someone with little to no understanding of the history of botanical Latin, it is likely understood only by reference to the technical terms used. For a non-botanist, therefore, it would need to be accompanied by a botanical glossary.

However, the publication of this taxon does not consist only of the nomenclature and Latin diagnosis. For both the genus and the species, the authors provide several paragraphs of
detailed descriptions in English, along with illustrations of the plant in question. It is by reference to these English descriptions and by reference to their own professional knowledge of the Melastomataceae that the Latin diagnosis of the genus makes sense to the layperson. The diagnosis of the species, on the other hand, uses quite simple grammar, employing an ablative of means, like the genus. There is no need to state further information in the diagnosis, since it would be identified in the same manner. It too, however, uses sufficiently specialized terminology that a glossary is necessary for those outside of the discipline.\(^{601}\) What is important to note in this entry is that by 2006, the ablative construction was merely an accepted convention for fulfilling the requirements for publication that had been encoded in the ICBN.

In contrast, Linnaeus saw the ablative as a crucial component of a true binomial. He insisted on very short ablative constructions within the formal diagnosis, which itself was to be no more than twelve words in length and clearly expressed both the differential and the essential characters of a plant.\(^{602}\) Thus, he described the plant *Bauhinia divaricata* with the phrase *foliis ovatis lobis divaricatis* (“with ovate leaves and spreading lobes”). In this way, it was distinguished from *B. ungulata*, for which he used the phrase *foliis ovatis lobis parallelis* (“with ovate leaves with parallel lobes”), and in contrast to *B. variegata*, described as *foliis cordatis,*

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\(^{601}\) The overall simplicity is belied by the use of the preposition *quoad*, which links the genus to its biological tribe, but it does not matter as long as the trained botanist recognizes the connection being made. *Quoad* is uncommon for modern botanical Latin. In Stearn’s list of prepositions frequently used (1966: 125-26), it is not listed. For the expression in Latin of the sense “concerning its tribe” or similar, Stearn recommends a *de* + ablative construction instead.

\(^{602}\) The *differential* diagnosis traditionally stated the ways in which a plant differed from others in the same group, in as few words as possible, with no inessential information. The *essential* diagnosis is similar, but expresses the idiosyncrasies of a plant, which are therefore essential to it and are not shared by other plants in the same genus or family. See Stearn 1966: 143-44 for a summary, and Lindley (1832) for comparatively early explanations of the differences between differential and essential diagnoses.
lobis coadunatis obtusis (“with cordate leaves, and blunt lobes that are united at their base”).

These short phrases are treated as part of the name of the species. As can be seen, however, the parataxis and even the punctuation used are crucial to deciphering the phrases, with commas showing when a particular ablative phrase refers to the plant, as opposed to providing further information about the plant part just described. While Linnaeus insisted on incredibly short diagnoses, his successors found it rather difficult to keep to twelve or fewer words and over time, they became slightly longer, as in the 2006 entry above, though they still retained the ablative constructions.

Traditionally, what followed the formal diagnosis, whether it was extremely short or somewhat longer, was a brief statement about the geographical areas to which the plant was native. Place names were either taken from antiquity, the Middle Ages, or were modern names that had been Latinized. Given that the purpose of these statements is to say where a plant may be found, they most commonly take the form of the preposition in + a variety of terms in the ablative, and ad + terms in the accusative, for example, in provincia Cajatambo in montibus Cordillera negra ad viam ad oppidum Ocros ad jugum Chonta dictum (“in the province of Cajatambo, in the Cordillera Negra mountains, on the road to the town of Ocros, by the ridge known as Chonta”). After the geographical statement, the entry would include the formal description, which, in contrast with the formal diagnosis, was in the nominative, not the ablative

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604 The effects of re-Latinizing names in Romance languages, which themselves derive from Latin, are an interesting study in and of themselves. Consider, e.g., Avenio, the accepted botanical geographical name for Avignon, or Castella Nova for Castilla la Nueva in Spain.

605 Stearn 1966: 144.
modifying the genus name. The formal description had considerably fewer restrictions on it than a formal diagnosis. It could be much longer and while opinions differed over the years, Stearn asserts that a description ought to at least provide information on habit, form, and the ways in which the plant differs from others in the same taxonomic groups.⁶⁰⁶ Again, over time, while the information included in a scientific description differed, more and more botanists were unfamiliar with Latin as a language of expression and so the order of the information became systematized. Thus, for flowering plants, Linnaeus’ rule from his 1751 *Philosophia Botanica* still holds (*PB* 1751: no. 328):

> Descriptio ordinem nascendi sequatur...Praestat naturam sequi a Radice ad Caulem, Petiolos, Pedunculos, Flores.

Let the description follow the order of growth...it is best to follow the natural structure from the roots, to the stem, the petioles, the peduncles, and then to the flowers.

In other words, Linnaeus recommends that the sequence of a description move up, in accordance with the growth pattern of the plant. Similarly, Alphonse de Candolle’s recommendation also still holds, to “pass from the known to the unknown, from definite matters to indefinite ones, from those which are most apparent to those which are less so.”⁶⁰⁷ Taking these two maxims into account, for a description of a plant’s leaves, one might state the position on the stem, how many leaves there are, their overall shape and outline, followed by descriptions of the apex, margin, base, length, breadth, pubescence, veining, texture, and color.⁶⁰⁸ In general, the petioles and stipules of a leaf are described after the blade itself, whereas for flowers, the anthers and the

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pollen follow the description of the stamens. There is a direct benefit to such conventions. If everyone agrees to follow them, those who compose descriptions can compare and contrast various species in a methodical way that makes sense to others in the field. Plants described with similar wording can be taken as similar and vice versa. Thus, the method of comparing and contrasting is strengthened by the deliberate use or avoidance of specific terms. This is further supported by the trend of italicizing or even changing the kerning of certain terms within a published description, in order to bring the reader’s attention to them.

As concrete examples for this discussion, we can consider two botanical diagnoses that pre-date the 1935 *ICBN*. These examples show how the adoption of the *ICBN* affected the ways in which Latin was used to compose diagnoses and descriptions. First is Edmond Boissier’s (1810-1885) entry for *Quercus alpestris* (Boissier 1838: 83):

Quercus alpestris N. -
Arbor 20-30-pedalis, trunco rugoso minime fungoso, ramulis pubescentibus, foliis oblongo-lanceolatis pallide virentibus deciduis coriaceis supra glabris subtus plus minusve tomentosis reticulato-venosis, margine undulatis, distanter grosse et irregulariter dentatis, dentibus latis acutis apicem folii spectantibus rarius subnullis, squamis cupulae adpressis tomentosis, nuce parva ovata cum mucrone. - Forma foliorum in hac arbo re multum variat sed semper dignoscuntur, longitudine, irregularite, margine undulato crispo, dentibus remotis irregularibus acutis plus minusve profundis. Foliorum consistentia Q. pseudosubere Desf. affinis, sed in ea cortex fungosa, folia ovata oblongave margine plana obtuse et in regulariter dentata. Q. faginea Lam., Valentina Cav. quae affinis quoque margine foliorum crispo, differt folii minoribus obovatis supra nitidissimis, regulariter et acutissime serratis dentibus minoribus approximatis, nervis secundarii sub tus valde prominulis numerosioribus rectioribus, venis obsoletis, nucibus longioribus acutis. Flores non vidi.

Observavi in solo monte Sierra de la Nieve dicto ubi abundantissima cum Abiete pinsapo crescit et limitem superiorem multo altiorem ulla alia specie Granatensi hujus generis habet. Alt. 3000’-6000’.  

Quercus alpestris N. -

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A tree 20-30 feet high, with a rugose trunk, minimally fungous; with pubescent branchlets; with pale green, oblong-lanceolate, deciduous, coriaceous leaves, glabrous above and relatively tomentose underneath, with a network of veins; undulate at the margin, and toothed in a largely well-spaced and irregular manner; with broad, sharp teeth, more rarely, almost none of which face the top of the leaf; with tomentose scales appressed to the cupula; with a nut that is small, ovate, obtuse with a sharp point. - The shape of the leaves in this tree varies much but they are always distinguished by their length and irregularity, by their wavy and curly margin, and by their scattered, irregular, sharp and relatively deep teeth. The texture of the leaves is akin to *Q. pseudosubere* Desf., but in that tree the bark is fungous, the leaves ovate or oblong with an even margin, obtusely and regularly toothed. *Q. faginea* Lam., *Valentina* Cav. which is kindred likewise with a curly margin of the leaves, differs with its smaller, obovate leaves, which are very shiny above, with regularly and very acutely serrate teeth; these are smaller and close together, with secondary nerves underneath that have little projections that are more numerous and straighter, with typical veins, and with nuts that are longer and pointed. I did not see flowers.

I have observed this tree only on the mountain named *Sierra de la Nieve* where it grows in very great abundance with *Abies pinsapo* and maintains an upper limit much higher than any other Granadan species of this genus. 3000’ - 6000’ altitude.

In this case, it is possible to look closely at the structure of the diagnosis and description. The first section of the first paragraph is the formal diagnosis, consisting of a description of the type of organism, the generic name of which, *Quercus*, is the classical Latin term for ‘oak tree’ and should immediately inform any botanist of the fact that the organism is a tree. The specific name is a 3rd-declension adjective that agrees with the generic name in gender and number (feminine singular), as was the custom, as Linnaeus recommended, and as was first codified in the 1935 *ICBN*. Unlike with the 2006 diagnosis and description, the entire entry is written in Latin, and demonstrates a strong grasp of both the Latin language and the terminology of botany. The diagnosis is one long sentence, consisting of a string of phrases, each of which uses the ablative of description extensively to modify the noun *arbor* with a large number of adjectives, most of

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611 “The specific epithet, when adjectival in form and not used as a substantive, agrees in gender with the generic name.” (*ICBN* 1935: 7)
which are fairly technical. In addition, each of these adjectives should be taken as essential to the diagnosis of the species.

The next section, beginning with *Forma foliorum*, marks the beginning of the extended description, in which Boissier is permitted to list the non-diagnostic features of the organism. As a result, Boissier switches to a more modern prose form in which various characteristics are stated in full sentences, each with a noun and verb, but using an ablative of means. Thus, in the diagnosis we are given the characteristics *with* which to recognize the organism, whereas in the description we are given the characteristics *by* which we can recognize the species. This is not a mere stylistic difference. It serves the purpose of letting the reader know that the former characteristics are precisely those which define the organism, and with which it is classified in the plant kingdom. The latter are simply used to further describe it. This distinction between the uses of the ablative was perfectly clear to Boissier, but not so to many 20th-century botanists, who, in attempting to mimic his style, inadvertently composed their descriptions entirely in the ablative, exactly as one would the diagnosis, thus missing the point of using the ablative of means in conjunction with the nominative forms of the plant’s organs.612

A final example is from the turn of the 17th century. Charles De L’Ecluse (1526-1609), a botanist and the first prefect of Leiden’s *Hortus Academicus*, composed the following entry in his volume on Spanish and Austrian flora (L’Ecluse 1601: 13):

_Siliqua silvestris_

_Huic arbori Siliquae sylvestris nomen indidi, non quod siliquae veteribus descriptae similis sit, sed quia nonnullis Hispaniae locis vulgari nomine sic appelletur._

_I. Crescit interdum in arborem iustae magnitudinis locis cultis: sed neglecta et sponte nascens, plerumque inter frutices potius, quam arbores censenda est. Rariores fert ramos alternatim ex lateribus nascentes, cortice ex purpura nigrice tactos, qui primo Vere_  

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612 Stearn 1966: 146.
I have imparted the name of *Siliqua sylvestris* to this tree, not because it is similar to a peapod described by the ancients, but because in some places of Spain it is thus called as a common name.

1. Occasionally, it grows into a tree of reasonable size, in cultivated places. But when it is neglected and grows freely, then it must generally be considered to be among the [class of] shrubs, rather than trees. It has rather scattered branches, which grow alternately from the sides, and which are covered with bark of purplish-black; these, at the beginning of spring, before the leaves appear or when the leaves first begin to bud, bear flowers in groups of 3 or 4, joined simultaneously on the lower part, with the appearance of heather or of peas, with a handsome purple color. Subsequently, the leaves emerge at intervals, being almost like *Asarum*, but less carnosus, of a nearly circinate rotundity, and very sinewy like those of the *Aristolochia* genus, hardy and green on top, but rather white on the bottom: following the flowers are purple (and in a way transparent), membranaceous pods, which are compressed, with the length and breadth of Foxglove, in which the seed of the lens is plain and hardy.

2. Another genus is found to be quite similar in all respects, except the flower, which in the latter is pure white, although it is purple at the very tip, and except for the bark of the young shoots which is pure white rather than purple. The former genus grows freely in the kingdom of Granada, and some other places of Spain and of France, between hedges. It is also maintained in gardens not only in Germany and Belgium, but also in the long-standing castles of Spain, on account of its charm. The latter genus, with its shining white flower, I have not seen growing freely, but only sprung up by seed in some Belgian

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613 L’Ecluse, Charles De (Carolus Clusius) 1601: 13. *Caroli Clusi Atrebatis ... Rariorum plantarum historia: quae accesserint, proxima pagina docebit*. Antuerpiae: ex officina Plantiniana, apud Ioannem Moretum. (N.B., I have had to shorten this entry, because it goes on quite a bit longer, and what I have quoted is sufficient to demonstrate the method and style of this time period). See Ermolao Barbaro’s *Corollaria* (19) for an entry on *Siliqua*. 
L’Ecluse has given the reason for the name of the plant, which is not scientific, but is merely a formalization of its common name. The second part of the name follows the standard punctuation and is an adjective in the genitive case, agreeing in gender with the first part of the name. L’Ecluse’s first sentence takes the place of what in a modern description would be a formal diagnosis, stating the essential characteristics of the species that make it stand apart from others of the same genus. The first sentence also immediately introduces a subjunctive, an obvious difference from modern descriptions, which primarily use the indicative mood.

L’Ecluse has chosen a simple point system to elucidate the characteristics of the tree he is describing. After a short explanation of the plant name, he states how and where it grows in its natural habitat, to distinguish the tree described from its cultivated counterparts. We are told in what parts of Europe it is wild, hence sponte nascens, and where it is cultivated in gardens. We are told its general growth habit, the formation of the branches, the color of the bark and of the flowers, the texture of the leaves, the shape of the seed, and so on. We are not told what height the tree achieves, and in fact the level of detail provided appears to end with the description of the seed. Nevertheless, it is worth noting that L’Ecluse starts with the trunk and bark and moves upward and outward, listing ever smaller parts of the tree. L’Ecluse’s second point provides the differentiation from another species that in modern botany would be expressed in the diagnosis. Another major difference is L’Ecluse’s use of the term genus. In post-Linnaean botany, a genus is a particular level in plant taxonomy, below a family, and above a species. Yet here, L’Ecluse is using the term in a less formal way, to refer only to a kind of organism. This corresponds more closely to its use in antiquity than to its use in the 18th century.

Syntactically, L’Ecluse makes use of several different ablatives and knowing what these
are is key to understanding his description. In the first sentence, the phrase *vulgari nomine* could be an ablative of respect, further specifying the action in the verb *appelletur*, while the phrase *locis cultis* is an ablative of place where. The second, and last, sentence in section one is typical in its length and complete disregard for punctuation. Its meaning is derived entirely from its syntax and from the noun endings, which are the only way to make sense of the phrases. It is a clever construction, however, beginning with a description of the branches, then the bark, the leaves, the flowers, the seed and seed pod.

These examples are not meant to be fully representative of the state of botanical Latin at their particular time periods. Rather, by looking at them as textual objects of value in and of themselves, it is possible to collect data that can be contrasted with the proto-botanical Latin of the 16th century. This contrast is most evident in the 2006 entry, in particular by reference to the complexity of the sentence structure and the technical vocabulary. There is just as much technical vocabulary in Boissier’s entry, where a large percentage of the vocabulary has specific botanical definitions. Yet the words themselves are often simply appropriated from either classical or medieval Latin. The botanical definition can usually be discerned in the words, even by the non-specialist. The divide is most significant with L’Ecluse, whose entry just barely made it to the 17th century and whose use of specialized technical vocabulary is minimal in comparison to the later entries.