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Studies on Ancient Plants.
Multidisciplinary Approaches and New Perspectives

ed. by Caterina Manco

List of abbreviations

Aër. = Hippocrates, *De aëre aquis et locis*
Aët. = Aëtius, *Libri medicinales*
AP = *Anthologia Palatina*
Aph. = Hippocrates, *Aphorismi*
Ar. = Aristophanes
Aret. = Aretaeus
Arist. = Aristoteles
Ath. = Athenaeus, *Deipnosophistae*
Av. = Aristophanes, *Aves*
BAM = F. Köcher, *Die babylonish-assyrische Medizin in Texten und Untersuchungen* (Berlin: De Gruyter, 1963–1980)
Cass.Fel. = Cassius Felix, *De medicina*
Cels. = Celsus, *De medicina*
Coac. = Hippocrates, *Coa praesagia*
Colum. = Columella, *De re rustica*
CP = Theophrastus, *De causis plantarum*
D.L. = Diogenes Laertius, *Vitae Philosophorum*
D.S. = Diodorus Siculus, *Bibliotheca historica*
Dsc. = Dioscorides
Ecl. = Pseudo-Oribasius, *Eclogae medicamentorum*
EN = Aristoteles, *Ehica Nicomachea*
Epid. = Hippocrates, *Epidemiae*
Eup. = Pseudo-Dioscorides, *Euporista*
Gal. = Galen
Georg. = Virgil, *Georgica*
Gp. = *Geoponica*
HA = Aristoteles, *Historia animalium*
Herb. = Pseudo-Apuleius, *Herbarius*
HN = Pliny the Elder, *Historia Naturalis*
Hp. = Hippocrates
HP = Theophrastus, *Historia plantarum*
Il. = *Ilias*
K. = Karl G. Kühn, *Claudii Galeni Opera omnia* (Lipsiae: C. Cnoblochius, 1821–1833)
L. = Émile Littré, *Œuvres complètes d'Hippocrate* (Paris: J.-B. Baillière, 1839–1861)
Marcell. = Marcellus
Med. = Marcellus, *De Medicamentis*
Mel. = Meleager
MM = Dioscorides, *De materia medica*
Mul. = Hippocrates, *De mulierum affectibus*
Nat.Mul. = Hippocrates, *De natura muliebri*
Nic. = Nicander
Od. = *Odyssea*
Orib. = Oribasius
PA = Aristoteles, *Partium animalium*
Paul.Aeg. = Paulus Aegineta, *Epitomae medicae libri septem*
Paus. = Pausania
Pl. = Plato
Plin. = Pliny the Elder
Plu. = Plutarchus
Ps.-Apul. = Pseudo-Apuleius
Ps.-Dsc. = Pseudo-Dioscorides
Ps.-Gal. = Pseudo-Galen
Ps.-Man. = Pseudo-Manetho
Rust. = Varro, *De re rustica*
Scrib. Larg. = Scribonius Largus, *Compositiones*
SD = Aretaeus, *De causis et signis acutorum morborum*
SMF = Galen, *De simplicium medicamentorum [temperamentis ac] facultatibus*
Sor. = Soranos, *Gynaeciorum libri*
SpTU 3 = E. von Weiher, *Spätbabylonische Texte aus Uruk III* (Berlin: Gebr. Mann, 1988)
Suc. = Pseudo-Galen, *De succedaneis*
Superf. = Hippocrates, *De superfetatione*
Str. = Strabo, *Geographica*
Syn. = Oribasius, *Synopsis ad Eustathium filium*
Theocr. = Theocritus
Ther. = Nicander, *Theriaca*
Thphr. = Theophrastus
Ti. = Plato, *Timaeus*
Varro = Marcus Terentius Varro
Verg. = Virgil
Virg. = Hippocrates, *De virginum morbis*
W. = Max Wellmann, *Pedanii Dioscuridis Anazarbei, De materia medica, libri quinque* (Berlin: Weidmann, 1906–1914)

Studies on Ancient Plants. Multidisciplinary Approaches and New Perspectives

PREFACE

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1. Introduction

One of the more or less rhetorical questions I have had to face over the years is: "What is the use of Ancient Greek?". No, this is not another piece aimed at defending it. The fact is that when you immerse yourself in the fresh waters of the Aegean – and I write these lines on a sweltering August day – you hardly want to come out. If you must, you reluctantly reach the shore, because Greek is an extraordinary tapestry of syllables and words interwoven, revealing deeper insights into how the Ancient Greeks perceived the world, and allowing us to journey through time and connect with other civilizations.

The history of the word *nardos* (νάρδος), for example, referring to the plant that grows in the mountain ranges of Nepal and the Himalayas, the nard, begins in India with the Sanskrit term *náladam*. From there, it transitions into Semitic (in Hebrew, we find *nerdə*), before reaching Greek.[1] Yet, rather than getting lost in this symphony of foreign sounds, we can turn to some more transparent examples. The word *agarikon* (ἀγαρικόν), for instance, may derive from the city of Agaria, in Sarmatia, where the plant grew abundantly.[2] And if we happen to

[1] Émilia Masson, *Recherches sur les Plus Anciens Emprunts Semitiques en Grec* (Paris: Librairie C. Klincksieck, 1967), 56. The plant has been identified with *Nardostachys jatamansi* (D.Don) DC. See Jacques André, *Les noms des plantes dans la Rome antique* (Paris: Les Belles Lettres, 1985), 170; Suzanne Amigues, *Théophraste. Recherches sur les plantes. Livre IX* (Paris: Les Belles Lettres, 2006), 315; Maximilian Haars, *Die allgemeinen Wirkungspotenziale der einfachen Arzneimittel bei Galen Oreibasios, Collectiones medicae XV. Einleitung, Übersetzung und pharmazeutischer Kommentar* (Stuttgart: Wissenschaftliche Verlagsgesellschaft, 2018), 318.

[2] See Dsc., *MM* III, 1. The plant is usually identified with a species in the genus *Polyporus*. See, among others,

lose our way, here resounds the suffix *-ea*, signaling the presence of a tree,[3] and we can then continue our journey in the shade of willows (*itea*, ἰτέα) and elms (*ptelea*, πτελέα), savoring the sweet fruits of apple (*mēlea*, μηλέα) and mulberry trees (*morea*, μορέα).[4]

These journeys, however, are rarely without obstacles, requiring us to navigate not only the complexities of the Greek language but also the gaps in our available sources and the inevitable transformations brought by the passage of time. Let us consider, for instance, "all the ambiguity of the term *mēlon* (μῆλον) in its generic meaning – likely to designate any fleshy fruit and more particularly apples, quinces, pomegranates and other peaches and apricots" ("toute l'ambiguïté du terme *mēlon* (μῆλον) dans son acception générique – susceptible de désigner tout fruit charnu et plus particulièrement les pommes, coings, grenades et autres pêches et abricots", here p. 53), told apart thanks to the accompanying adjectives.[5] These descriptors, however, could shift in meaning depending on the author and could also lead to potential confusion for those without a keen knowledge of botany. Dioscorides, for example, notes that the expression *mēlea Persikē* (μηλέα Περσική), literally "Persian apple tree", could refer either to the peach, familiar to the Greeks as early as the 7th century BCE, or, beginning with Theophrastus, to the citron, introduced to the West around 330 BCE.[6] For a modern reader, determining which fruit is meant can be tricky without context. Furthermore, the adjective *Persikē* should not be mistaken as indicating the place of origin of these plants, as Persia merely handled their distribution: in fact, the peach was from China and the citron from Southeast Asia and India.[7] Such linguistic nuances reflect the complex journeys of these plants (and their names) across the ancient world, and we must remain mindful of these challenges at every step.

Yet, despite such difficulties, it is impossible not to marvel at the richness of the Greek botanical lexicon. Consider its "dovecotes" (*peristereōn*, περιστερεών) – shelters beloved by doves (*peristerai*, περιστεραί) – or its "little cough" (*bēchion*, βηχίον), a clear remedy for respiratory ailments. Then there are the "frothy poppies" (*mēkōn aphrōdēs*, μήκων ἀφρώδης), with leaves adorned by tiny, foam-like droplets, or the wild "horse fennel" (*hippomarathron*,

Lily Beck, *Pedanius Dioscorides of Anazarbus. De materia medica* (Hildesheim/Zürich/New York: Olms/Weidmann, 2005), 175.

[3] Pierre Chantraine, *La formation des noms en grec ancien* (Paris: Librairie C. Klincksieck, 1979), 91–92.

[4] The term *itea* designates the different species of willow (*Salix* L.). See André, *Noms des plantes*, 134, Amigues, *Théophraste*, 292 and Haars, *Oreibasios*, 243–244. By the word *ptelea* the Greeks named a plant of the genus *Ulmus* L. See André, *Noms des plantes*, 210, Amigues, *Théophraste*, 326 and Haars, *Oreibasios*, 353. *Mēlea* refers to both cultivated apple (*Malus domestica* Borkh.) and wild (*M. sylvestris* (L.) Mill.). See Haars, *Oreibasios*, 306–307. *Morea* is *Morus nigra* L. See André, *Noms des plantes*, 164 and Haars, *Oreibasios*, 311–312.

[5] Galen, for examples, uses the adjectives Περσική, Ἀρμενική and Μηδική to designate peaches, apricots and citrons respectively. See Gal., *SMF* VII μ 17–19 (XII, 76–77 K.).

[6] Suzanne Amigues, "Végétaux et aromates de l'Orient dans le monde antique", *Topoi* 12–13 (2005): 362–364.

[7] Ibid.

ἱππομάραθρον), which towers over its domesticated counterpart.[8] The lexicon is simple and vivid, often poetic, playing with metaphors, compound words, polysemy, and metonymy, among others. It draws inspiration from a variety of fields, including zoology, medicine, geography, mythology, and everyday life, showcasing the resourcefulness of the ancient Greeks in overcoming the *inopia verborum* of their vocabulary. These non-botanical influences suggest that many plant names were coined later, challenging us to find fresh approaches to unlock their mysteries. But plant names themselves have been used to craft clever expressions. The Greeks devised an especially biting, yet elegant term for miserly individuals: *kyminopristēs* (κυμινοπρίστης), literally "cumin splitter".[9] This metaphor is not only sharp but also amusingly appropriate – splitting a cumin seed (Fig. 1), one of the tiniest of spices, would be a ridiculously meticulous task!

While countless other examples could be cited across various lexical domains, the focus here remains plants, given the theme of the following pages. Plants took center stage at the international workshop I co-organized with Matteo Martelli on February 13 and 14, 2023, at the University of Bologna. This workshop was part of the ERC project *AlchemEast – Alchemy in the Making: From Ancient Babylonia via Graeco-Roman Egypt into the Byzantine, Syriac, and Arabic Traditions (1500 BCE – 1000 AD)*, from which this special issue is derived. The six contributions that follow, presented in both English and French, do not aim to address every question surrounding plants but seek to explore some issues related to their study.

Fig. 1. Dried cumin seed (*Cuminum cyminum*). Scale is in millimeters. © Wikimedia Commons.

[8] The *peristereōn* is a species of bugleweed (*Lycopus*: *L. europaeus* L. or *L. exaltatus* L.). See André, *Noms des plantes*, 193 and Haars, *Oreibasios*, 341. The *bēchion* is the coltsfoot (*Tussilago farfara* L.). See André, *Noms des plantes*, 35 and Haars, *Oreibasios*, 199. The *mēkōn aphrōdēs* has been identified with the maidenstears (*Silene vulgaris* (Moench) Garcke). See André, *Noms des plantes*, 156, Amigues, *Théophraste*, 312 and Haars, *Oreibasios*, 306. The word *hippomarathron* designates at least two different plants whose identifications are still problematic. The first one could correspond to *Cachrys ferulacea* (L.) Calestani, *Hippomarathrum cristatum* Boiss., *Hippomarathrum pauciradiatum* Heldr. & Halácsy e *Athamanta macedonica* (L.) Sprengel, while the second to *Bifora testiculata* (L.) Roth. See André, *Noms des plantes*, 124 and 154, Amigues, *Théophraste*, 291 and Haars, *Oreibasios*, 299.

[9] See, for instance, Arist., *EN* IV, 3, 1121b 27.

2. Plants on the move

The ancient Greeks inhabited an extraordinary botanical landscape. The Greek peninsula is predominantly mountainous, with rugged terrain covering 80% of its territory, leaving only small pockets of plains and hills. Yet, beyond these peaks lies the vast expanse of the Mediterranean Sea, "a very old crossroads" where "for millennia, everything has converged [...], blurring and enriching its history: men, pack animals, vehicles, goods, ships, ideas, religions, ways of life. And even plants. You think they are Mediterranean. Yet, with the exception of olive trees, vines, and wheat, almost all of them originated far from the sea".[10] Fernand Braudel refers here only to the plants of the so-called Mediterranean triad, but the geographical conditions of the Greek peninsula fostered "the development of several types of plant formations"[11] that not only shaped the daily lives of the ancient Greeks but also permeated their imagination. Consider the intricate depictions of trees on the Vaphio Cup no. 1759, the Phrasikleia Kore adorned in a flowered chiton and holding a lotus, the oak-leaf crown of Philip II of Macedon, the vine-laden cup of Dionysus, or the olive branches beside the owl on Athenian tetradrachms (Fig. 2–6). These famous motifs reveal the deep appreciation the Greeks held for the natural flora around them. The connection to the plant world is also evident in literature, where the number of plants mentioned grows significantly between Homer's epics (8th century BCE) and Dioscorides' *De Materia Medica* (1st century CE).[12] This evolution reflects not only the shifting interests of authors but also the expansion of the Greek world following Alexander the Great's conquests.[13] As trade routes widened – also fuelled by innovations like the discovery of monsoon winds that facilitated navigation between the Red Sea and India – exotic flora began to mingle with local varieties.[14]

As Pascal Luccioni highlights in his article *Flowers in the Poem and Flowers in the Gardens: On Plant Lists in Nicander (frg. 74 Schn.) and Meleager (AP IV, 1)* (pp. 23–41), "international trade of (living) plants is obviously much less developed in Antiquity than it has been during later periods, [but] [...] the first 'globalization' of plant trade around the Mediterra-

[10] "Depuis des millénaires tout a conflué [...], brouillant, enrichissant son histoire : hommes, bêtes de charges, voitures, marchandises, navires, idées, religions, arts de vivre. Et même les plantes. Vous les croyez méditerranéennes. Or à l'exception de l'olivier, de la vigne et du blé, elles sont presque toutes nées loin de la mer". Fernand Braudel, *La Méditerranée. L'espace et l'histoire* (Paris: Flammarion, 1985), 9.

[11] "Le développement de plusieurs types de formations végétales". Guy Ducourthial, *Flore magique et astrologique de l'antiquité* (Paris: Belin, 2003), 15.

[12] Ibid., 19.

[13] There were two possible routes to the East: the first by sea, in which the Arabs played an essential role, since they connected the Asian ports with the Mediterranean ports; the second by land, from the north (the territories of Mesopotamia). See Masson, *Emprunts Semitiques*, 46–47 and James Innes Miller, *The Spice Trade of the Roman Empire, 29 B.C. to A.D. 641* (Oxford: Clarendon Press, 1969), 7.

[14] See John Scarborough, "Roman pharmacy and the eastern drug trade: some problems illustrated by the example of aloe", *Pharmacy in History* 24 (1982): 140 and Ducourthial, *Flore magique*, 20.

nean (and beyond, if we take into account some resins and spices) [took place] during the Hellenistic period" (here, p. 29). These exchanges, both economic and cultural, did not just reshape agriculture; they permeated the literature of the time. Nicander and Meleager, for instance, while working in different genres, both echo these transformations: Nicander with his practical advice on planting various species, and Meleager with his poetic analogies, where he likens poets to flowers. Both, in their own way, reflect the sweeping botanical changes that marked the Hellenistic period.

At the same time, similar innovations were unfolding in Egypt, where Greek fruit trees like pear, apple, and quince were being introduced into local agriculture. Valérie Schram's article, *Nouvelles approches pour l'étude des plantes en Égypte gréco-romaine autour de deux études de cas (pommiers et sébestiers)* (pp. 43–64), explores this dynamic, focusing on the apple and sebesten trees – one a new arrival, the other a long-established species in Egypt. By drawing on papyrological, archaeobotanical, and ethnobotanical evidence, now accessible via the 2023 platform "*Ergaleion* – Outil de lexicographie papyrologique de la vie matérielle", she traces the influence of these plants across time (from the 3rd century BCE to the 8th century CE), while also offering proposals for identifying the plant names found in the available documentation.

Through this blend of poetry, trade, and cultivation, we witness a Mediterranean world in the midst of its first great botanical exchange – where texts and agriculture are intertwined, and these *plants on the move* carry stories of cultural transformation.[15]

3. Plants playing hide and seek

"Among the challenges faced by any modern reader of [...] [ancient texts] is that of naming [...] plants [...], especially when it comes to using current scientific nomenclature. [...] [These] issues arise for virtually all ancient – and medieval – texts [not only the Greek ones] dealing with plants" (here, p. 100). These works, written in different languages and within vastly different cultural frameworks, often used descriptions and names that do not always align with the botanical knowledge of later centuries.

A distinctive feature of ancient botany lies in the use of descriptions based on implicit data: they do not contain explicit descriptions of particular species but rely on comparisons with other plants,[16] making identifications difficult, especially when the plant used for comparison is unknown or when several species of the same plant exist. In contrast, explicit botan-

[15] On this point see, Laurence Totelin, "Trade and Exploration", in *A Cultural History of Plants in Antiquity*, ed. Annette Giesecke (London/New York/Dublin: Bloomsbury, 2022), 67–83.

[16] On this point, see Gavin Hardy and Laurence Totelin, *Ancient Botany* (London/New York: Routledge, 2016), 104–113.

Fig. 2. Golden cup from Vafio 1500 to 1450 BC. © Wikimedia Commons.

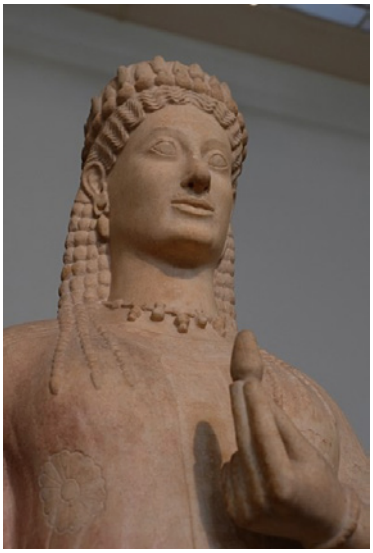

Fig. 3. Phrasikleia Kore. © Wikimedia Commons.

Fig. 4. Golden crown of Philip II of Macedon at Vergina. © en.wikipedia.

Fig. 5. Dyonisus Cup. © Wikimedia Commons.

Fig. 6. Athenian tetradrachm. © Wikimedia Commons.

ical descriptions only contain the most essential details, without capturing the full complexity of a plant's morphology.[17]

The landscape of botany changed in the 18th century with Linnaeus' revolutionary binomial classification. By assigning each plant a standardized genus and species, Linnaeus created a universal language for plant identification, one that cut through the confusion of popular and regional names. Suddenly, plants could be identified with certainty, even across different cultures and languages. This scientific nomenclature is conspicuously absent from the ancient botanical tradition, where phytonyms, synonyms, and regional variants dance fluidly across texts, often intermingling or overlapping based on the whims of individual authors, as an accompanied canon. Further complicating this intricate dance is the fact that the same botanical term may be applied to several plants that share common elements. Lastly, although ancient phytonyms may match modern ones, they do not always find "their way into modern nomenclature, and they can be misleading to a modern reader".[18]

Yet, the concept of "modern reader" is not static. It can be stretched almost infinitely to include not just today's scholars, but readers of every era – each one attempting, in their own way, to bridge the gap between the knowledge of the past and the language or mindset of their own time. Take, for instance, the transmission of Galen's works into the Eastern world – a journey that began with Sergius of Rēshʿainā (d. 536), who brought the Galenic corpus into the Syriac language. One of these translations is Galen's *On Simple Drugs*. For books 6–8, Sergius works through a long list of medicinal plants, showing the challenges of crossing cultural and botanical boundaries. His translations, like "δρῦς [*drys*] which is baluṭā" and "ἐρείκη [*ereikē*] which is *perhaps* ʿārā" (my emphasis), highlight his struggle to find exact matches for Greek plant names.[19]

The further Chronos stretches his reach, the more layers of time and interpretation accumulate, complicating our efforts to identify the plants described in ancient texts. This is no small task, especially when even the most learned interpreters (*i.e.* botanical experts of their time) often disagreed among themselves: *dissentiunt interpretes rei herbariae gnari* stated Kurt Sprengel (1766–1833) about the *arktion/arktouros* (ἄρκτιον/ἀρκτοῦρος). This plant has piqued the interest of several scholars throughout history. Figures like Jean Ruel (1474–1537), Rembert Dodoens (1517–1585), Onorio Belli (mid-16th century), Fabio Colonna (1567–1640), Prospero Alpini (1553–1616), John Sibthorp (1758–1796), and Carl Fraas

[17] This approach can also be found in Mesopotamian texts, thus suggesting a long-standing, perhaps even normative, tradition of structuring plant descriptions in a certain way. For more details, see Maddalena Rumor, "At the Dawn of Plant Taxonomy: Shared Structural Design of Herbal Descriptions in *Šammu šikinšu* and Theophrastus' *Historia plantarum* IX", in *Mesopotamian Medicine and Magic. Studies in Honor of Markham J. Geller*, ed. Strahil V. Panayotov and Ludek Vacin (Leiden/Boston: Brill, 2018), 446–461.

[18] Annette Giesecke, "Introduction: Plants and Culture in Antiquity", in *A Cultural History of Plants in Antiquity*, ed. Annette Giesecke (London/New York/Dublin: Bloomsbury, 2022), 9.

[19] On this point, see Siam Bhayro and Robert Hawley, "La littérature botanique et pharmaceutique en langue syriaque", in *Les sciences en syriaque*, ed. Émilie Villey (Paris: Geuthner, 2014), 297.

(1810–1875) each put forward their own theories, leaving today's scholars to navigate a web of conflicting interpretations.[20]

Carl Fraas' proposals, in particular, stand out for their daring blend of textual analysis and on-the-ground exploration. As discussed in Maximilian Haars's *Seven Years in Greece – Carl Fraas (1810–1875) and His Identifications of Dioscuridean Plant Names* (pp. 65–86), Fraas grappled with a range of ancient plant identifications that have been alternately embraced and dismissed by major reference works such as Liddell-Scott-Jones lexicon, Jacques André's *Les noms des plantes dans la Rome antique* cited above, and the edition of Theophrastus' works by Suzannes Amigues.[21] While some of his comments in *Synopsis plantarum florae classicae* (1845) may seem speculative, and his reliance on a questionable Dioscoridean text invites criticism, Fraas' work deserves a fresh look. His commitment to fieldwork in a pre-industrial Greek landscape provided him with a rare firsthand perspective, grounding his interpretations not only on written sources, but above all on direct observation of nature. This lent a unique authenticity to the identifications he proposed, which continue to resonate in the quest to decode the botanical mysteries of the ancient world.

Unravelling these mysteries and getting "higher and further" demand more than just individual effort; it calls for a "a rope team of specialists who can rely on each other" (here, p. 86) and for a methodical, exhaustive approach that combs through every available source. This strategy, championed by Maddalena Rumor in *The Study of Plants in Mesopotamian Scholarship* (pp. 87–98), is not just vital for Mesopotamian studies but is equally crucial for any investigation of ancient or medieval texts on plants. As the author underlines, only through such a comprehensive and interconnected approach can scholars draw meaningful phytonymic parallels between texts, supported by detailed morphological descriptions and corroborated uses that consistently appear across various sources. These findings must also resonate with broader insights from fields like "archaeology, paleo-botany, anthropology, and [...] the cross-investigation of all extant texts produced by roughly-contemporary ancient civilizations" (here, p. 98). This holistic approach protects researchers from the dangers of careless comparative methods, ensuring that ancient botanical knowledge is thoughtfully reconstructed instead of being misrepresented.

In addition to the sources just mentioned, another tool at our disposal for identifying ancient plants is offered by manuscript illustrations, which come with their own challenges: they may have been artificially associated with the accompanying text, or, due to the limitations of ancient botanical descriptions, illustrators might have added elements absent in the texts to complete a plant's depiction, leading to different illustrative traditions. These complexities, among other, are highlighted by Marie Cronier in her *Identifying the plant illustrated on the*

[20] For more details, see Caterina Manco, "*Arktion*, why do you still play hide and seek with us?" (forthcoming).

[21] Henry George R. Liddel, Robert Scott and Henry Stuart Jones, *A Greek English Lexicon* (Oxford: Clarendon Press, 1968). Suzanne Amigues, *Théophraste. Recherches sur les plantes*, 5 vol. (Paris: Les Belles Lettres, 1988–2006).

Greek fragment of Dioscorides from Erevan. Some remarks on the illustrative tradition of On Medical Materials (pp. 99–125). The author challenges our understanding of the text-image relationship in ancient manuscripts, using a 6th-century fragment from the Armenian library as evidence. This fragment is significant as the oldest version of the Dioscoridean text in its original form, with illustrations, and is the earliest known example in Greek – and in any language – where illustrations follow their corresponding chapters.

Identifying ancient *plants playing hide and seek* with us even today involves understanding the complex interplay of knowledge, culture, and interpretation across time and recognizing ancient texts and illustrations as living documents that continue to influence our understanding of the natural world.

4. The future of plants

From the dawn of civilization, humanity has been driven by a deep, primal need to seek relief from ailments, whether they troubled the body or the mind. The discovery of fire not only brought light and warmth but also unforeseen dangers. Accidents involving burns must have been frequent, and in response to these new threats, "herbs were valued by Neanderthal man in Iraq as early as 60,000 B.C. Thus, an important aspect of man's early attempts at medical practice was understanding the utility of plants".[22] Early humans, in their struggle for survival, learned that nature held the keys to healing. As Pliny the Elder wrote centuries later: "Not even the woods and the wilder face of Nature are without medicines, for there is no place where that holy Mother of all things did not distribute remedies for the healing of mankind".[23] Over time, across the most diverse geographies and cultures, texts began to emerge that, with various approaches, described the properties of the products of this "holy Mother", ensuring that future generations could also benefit from them.[24] From the Babylonian pharmacological tablets to the Egyptian medical papyri – where, as Homer noted, "the earth, the giver go grain, bears greatest store of drugs, many that are healing when mixed, and many that are baneful"[25] – the study of plants grew into a sophisticated tradition.

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[22] John Scarborough, "On Medications for Burns in Classical Antiquity", in *Symposium on historical perspectives of Plastic Surgery*, ed. Sharon Romm (Philadelphia/London: Saunders, 1983), 603.

[23] *Ne silvae quidem horridiorque naturae facies medicinis carent, sacra illa parente rerum omnium nusquam non remedia disponente homini*. Plin., *HN* XXIV, 1. Text and translation by William Henry Samuel Jones, *Pliny. Natural History with an English translation in ten volumes. Vol. VII. Libri XXIV-XXVII* (London/Cambridge (MA): William Heinemann LTD and Harvard University Press, 1956), 2–3.

[24] For an overview of the uses of remedies in different civilizations, see Attilio Zanca, *Il farmaco nei tempi* (Parma: Farmitalia Carlo Erba, 1989).

[25] [...] πλεῖστα φέρει ζείδωρος ἄρουρα / φάρμακα, πολλὰ μὲν ἐσθλὰ μεμιγμένα, πολλὰ δὲ λυγρά· / ἰητρὸς δὲ ἕκαστος ἐπιστάμενος περὶ πάντων / ἀνθρώπων [...]. *Od.* IV, 229–232. Text and translation by Augustus Taber Murray, *Homer. The Odyssey. Books 1–12* (London/Cambridge (MA): Harvard University Press, 1995), 134–135.

When we turn from the fertile plains of the Tigris and Euphrates and the Nile Valley to the rugged landscapes of Greece, we find similar traditions, deeply rooted in a shadowy past, often interwoven with mythology. Many plant names bear traces of this heritage: *the panakes Asklēpeion/Hērakleion/Cheirōneion* (πάνακες Ἀσκλήπειον/Ἡράκλειον/Χειρώνειον) echos the figures of Asclepius, Heracles, and Chiron – though not always with complete accuracy.[26] Yet beyond the realm of myth, historical references to plant lore abound: "Drug lore is the earliest documented aspect of Greek medicine, as spices and presumed pharmaceuticals appear in the Linear B tablets of Mycenaean Greece and Crete".[27] This attests to an enduring interest in pharmacology[28] that predates the formal medical treatises of the 4th century BCE, by the physician Diocles of Carystus (the Hippocratic Corpus, while rich in pharmacological theories and descriptions of simples, lacks texts specifically focused on pharmacology).[29] During the Hellenistic period, medical advancements by Herophilean physicians, the patronage of Hellenistic rulers, and Alexander the Great's conquests, which introduced exotic flora to the Greek pharmacopeia, catalysed a surge in pharmacological research and expanded the corpus of botanical treatises. Herophilus valued simple plant-based remedies,[30] believing in their power to address almost any ailment: "Hence too I find that most authorities hold that there is nothing which cannot be achieved by the power of plants, but that the properties of most are still unknown. Among these thinkers was Herophilus, famous in medicine, who is report-

[26] See Michel Casevitz, "Anthroponymes et phytonymes en grec", in *Les phytonymes grecs et latins. Actes du colloque international tenu à Nice les 14–16 mai 1992*, ed. AA.VV. (Nice: Université de Nice-Sophia Antipolis, 1993), 85–95. If the identification of the last two plants is problematic (for more details, see Haars, *Oreibasios*, 335–336), the first is a plants of the genus *Opopanax* L. (in particular, *Opopanax hispidus* Griseb.). See André, *Noms des plantes*, 186–187 and Haars, *Oreibasios*, 334–335.

[27] John Scarborough, "Early Byzantine Pharmacology", in *Dumbarton Oaks Papers 38. Symposium on Byzantine Medicine*, ed. John Scarborough (Cambridge (MA): Harvard University Press, 1984), 213.

[28] For a rich bibliography on the subject, see Marie-Hélène Marganne and Pierre Koemoth, *Pharmacopoea Aegyptia et Graeco-aegyptia* (Liège: Cedopal, 2009), and Daniela Fausti and Svetlana Hautala, "Bibliografia della botanica antica", *Lettre d'information médecine antique et médiévale* 6 (2007): 1–60.

[29] On this point, see Innocenzo Mazzini, *La medicina dei Greci e dei Romani* (Roma: Jouvence, 1997). As for pharmacological theories in the *Corpus Hippocraticum*, see Jerry Stannard, "Hippocratic pharmacology", *Bulletin of the History of Medicine* 35, no. 6 (1961): 497–518 and John Scarborough, "Theoretical assumptions in Hippocratic Pharmacology", in *Formes de la pensée dans la collection hippocratique. Actes du IVe Colloque International Hippocratique, Lausanne, Septembre 1981*, ed. François Lasserre and Philippe Maudry (Genève: Droz, 1983), 307–325. However, pharmacological texts must not have been missing given that, in certain treatises, there are references to such texts. In *De affectionibus*, for example, there are references to works on pharmacology: *Pharmakitis* (φαρμακῖτις) and *En tois pharmakois* (ἐν τοῖς φαρμάκοις). For an updated picture of Hippocratic pharmacy, see Laurence Totelin, *Hippocratic recipes. Oral and Written Transmission of Pharmacological Knowledge in Fifth- And Fourth-Century Greece* (Leiden: Brill, 2009). See also Daniela Fausti, "La farmacologia nel trattato ippocratico *De locis in homine*", *Galenos* 9 (2015): 123–140.

[30] Luciana Repici, "Medici e botanica popolare", in *Medicina e società nel mondo antico. Atti del convegno di Udine, 4-5 ottobre 2005*, a cura di Isabella Andorlini e Arnaldo Marcone (Milano: Le Monnier Università, 2006), 72–90.

ed to have said that certain plants are perhaps even when beneficial merely trodden on".[31] Yet much of this ancient pharmacological knowledge has been lost, eclipsed by the monumental works of later authors like Dioscorides and Galen,[32] who synthesized centuries of Greek and Roman botanical expertise into grand compendia. In Latin literature, Celsus, Pliny the Elder, and Scribonius Largus contributed similarly comprehensive works, preserving a fraction of what was once a vibrant and diverse corpus.

In *Les utilisations des armoises (*Artemisia *L.) dans le monde gréco-romain à la lumière des connaissances chimico-médicales actuelles* (pp. 127–150), Valérie Bonet, Eric Faure, and Divna Soleil explore how ancient medical authors, from Hippocrates to Cassius Felix, documented the properties of plants from the *Artemisia* genus, named, even in modern scientific nomenclature, after the goddess associated with women's health – ailments that these plants were frequently used to treat. Their research emphasizes the relevance of modern science in validating ancient remedies: recent biochemical analyses have confirmed the therapeutic potential of many of these species through the isolation of their active compounds. Thus, even amid modern efforts to "develop new therapeutic drugs [...], revisiting the past may still inspire new remedies for the future" ("développer de nouvelles drogues thérapeutiques [...], [un tel] retour vers le passé pourrait aussi aider à proposer de nouveaux remèdes pour le futur", here, p. 150).

The study of ancient texts is not just about piecing together fragments of botanical lore. Despite the gaps and uncertainties, these texts offer more than historical curiosity – they serve as a reminder that the pursuit of health is a timeless endeavour, one that crosses the boundaries of time and place. And as modern science circles back to re-examine these ancient sources, we may yet find that the "holy Mother" still has remedies to offer, revealing new possibilities where past wisdom meets future innovation.

5. Conclusions

What if, instead of viewing plants *for* the future – whether as medicinal resources, food sources, or even economic assets – we consider plants *in* the future? Doing so opens up an entirely new and fascinating landscape. Recent developments in plant biology, coupled with insights from philosophy and psychology, have given rise to a radically different perception of the

[31] *Inde et plerosque ita video existimare nihil non herbarum vi effici posse, sed plurimarum vires esse incognitas, quorum in numero fuit Herophilus clarus medicina, a quo ferunt dictum, quasdam fortassis etiam calcatas prodesse*. Plin., *HN* XXV, 5. Text and translation by Jones, *Pliny. Natural History*, 146–147. See also fragment 254 in Heinrich von Staden, *Herophilus. The Art of Medicine in Early Alexandria: Edition, Translation and Essays* (Cambridge: Cambridge University Press, 1989), 420–421.

[32] Marie Cronier, "Recherches sur l'histoire du texte du *De materia medica* de Dioscoride" (PhD diss., EPHE, 2007), 8.

plant world, challenging the very foundations of the great chain of being (*scala naturae*), an idea that has endured since Plato and Aristotle's time.[33] In this rigid schema, plants were consigned to one of the lowest rungs, just above the inert, lifeless matter.[34]

Yet, contemporary research suggests that plants may be far more complex than senseless and immobile, as Aristotle thought. Plants are now being reimagined as dynamic beings, capable of movement, communication, and perception, as entities with their own modes of intelligence and strategies for engaging with the world.[35] So advanced is this new understanding that some researchers have gone so far as to suggest that plants deserve their own "Charter of Rights",[36] a notion that emphasizes their status as sentient, interconnected beings rather than mere resources. This paradigm shift has not gone unnoticed in classical studies either, where scholars are beginning to reconsider the ancient texts that have long shaped our understanding of the natural world.[37]

So, our sceptical friend might exclaim: "The Greeks were wrong!". Perhaps, instead of dismissing the Greeks as "wrong", it would be more accurate to see their attempts at understanding plants as a crucial first step in a much longer journey. The Greeks did not have access to the sophisticated tools and theories we possess today. They constructed their cosmologies using the best methods available to them such as mythology, careful observation, and analogy, laying the groundwork for the journey that modern science is now taking to illuminate the hidden lives of plants. Will our friend understand? I do not know. In the meantime, I will dive back in and let myself be cradled by the fresh waters of the Aegean.

Happy reading!

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[33] For this concept see Pl., *Ti.* 91D and Arist., *PA* IV, 681a12 and 686b26.

[34] See, for instance, Arist., *HA* VII (VIII), 588b.

[35] See, among others, Stefano Mancuso and Alessandra Viola, *Verde brillante, sensibilità e intelligenza del mondo vegetale* (Firenze: Giunti editore, 2013); Stefano Mancuso, *L'incredibile viaggio delle piante* (Roma/Bari: Laterza, 2018); Umberto Castiello, *La mente delle piante. Introduzione alla psicologia vegetale* (Bologna: Il Mulino, 2019); Paco Calvo, *Planta Sapiens. Perché il mondo vegetale ci assomiglia più di quanto crediamo* (Milano: il Saggiatore, 2022).

[36] See Stefano Mancuso, *La nazione delle piante* (Roma/Bari: Laterza, 2019).

[37] At the conference *Plants and Philosophy: From Ancient Wisdom to Today's Science*, held at the University of Venice on May 30–31, 2023, Andrea Falcon (University of Milan) presented a paper entitled "Do Plants Have Feelings of Pleasure and Pain? The Ancient Debate on the Cognitive Powers of Plants".

Flowers in the Poem and Flowers in the Gardens: On Plant Lists in Nicander (frg. 74 Schn.) and Meleager (*AP* IV, 1)

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/ Abstract

From various Ancient Greek poets we have lists of ornamental plants; longer examples are found in Nicander and Meleager, two poets who belong to roughly the same period. A detailed reading of both will confirm that they are not immediately concerned with real flowers found together in any real location. But the fact that (though their aim is very different) they have much in common, and particularly the numerous plant species they share, hint at a particular flower culture which is likely to have been characteristic of the late Hellenistic period. The gardens it allows us to imagine were artificial, filled with more or less exotic species, but the fashion they enjoyed compels us to consider that they were also real places where high cultural (and literary) life might be enjoyed.

Da vari poeti greci antichi abbiamo elenchi di piante ornamentali; esempi più corposi si trovano in Nicandro e Meleagro, due poeti che appartengono più o meno allo stesso periodo. Una lettura dettagliata di entrambi confermerà che non hanno un interesse immediato per fiori veri trovati insieme in un luogo reale. Ma il fatto che (sebbene il loro scopo sia molto diverso) abbiano molto in comune, e in particolare le numerose specie di piante che condividono, alludono a una particolare cultura floreale che probabilmente ha caratterizzato il tardo periodo ellenistico. I giardini che ci fanno immaginare erano giardini artificiali pieni di specie più o meno esotiche, ma il fascino che esercitavano ci costringe a pensare che fossero anche luoghi reali dove si poteva godere di un'alta vita culturale (e letteraria).

/ Keywords

Ancient botany; Hellenistic poetry; Flower culture; Flower cultivation; Plants as metaphors.

Die alte Welt erneuern – das ist der tiefste Trieb im Wunsch des Sammlers.

Walter Benjamin[1]

Botanists love lists. A *Flora* is a kind of list, but botanists also publish *Catalogues*, *Repertoria*, *Inventories*, *Check-lists*. They might browse *Florilegia*: in which last case, an aesthetic representation of all the species present in a garden or park is meant. The question of the precise area considered by the author of a given list shall come back soon in this essay. The first Florilegium published may well have been the one Adrian Collaert published around 1590,[2] and many will follow suit.[3] Though the word florilegium soon acquired a technical and generic sense, some well-known later florilegia have rather been titled *hortus*, "garden".[4] One might also take into account the *Amoenitates*: although the word originally means any kind of ornament (and as such has been used as a title in various disciplines), it is not infrequently used by botanists.[5] It may be that when talking or writing about plants, scientific work and aesthetic pleasure are not widely separated.

If we look at poets, the question might be slightly thornier, but it is nonetheless obvious that lists and poetry have a lot in common. We need only to think about how important the idea of catalogues has become for our understanding of archaic poetry, or again of the works of modern poets like Walt Whitman or (in French) Jacques Roubaud. If we limit ourselves to ancient literature, what we call the Catalogue of Ships in the *Iliad* is sometimes called *katalogos* (κατάλογος) by Greek authors, but sometimes also *diakosmos* (διάκοσμος), a word which seems to imply some kind of order or organisational principle which would contribute something to the beauty of the poetry. *Katalogos*, on the contrary, seems to link catalogues to the writing of prose-texts and to the adverb *katalogadēn* (καταλογάδην), "in prose".[6]

Within the study of lists,[7] two questions are first and foremost: how were the elements that belong to a given list selected within a larger set of elements? and how are the elements

[1] Walter Benjamin, "Ich packe meine Bibliothek aus", in Tillman Rexroth (ed.), *Walter Benjamin. Gesammelte Schriften*, vol. 4/1 (Berlin: Suhrkamp Verlag, 1972), 388.

[2] Adriaen Collaert and Philippe Galle, *Florilegium ab Hadriano Collaert caelatum [...]* (s.l.: s.n., ca. 1590).

[3] One may mention in particular Emmanuel Sweert, *Florilegium amplissimum et selectissimum* (Amstelodami: apud Joannem Janssonium, 1647) produced on the occasion of Frankfurt Messe in 1612, and whose various reeditions would contribute to 17th century tulipomania. Lists *are* grounded in the real world.

[4] Notably Basilius Besler, *Hortus eystettensis* (s.l.: s.n., 1613).

[5] One might think of Engelbert Kämpfer, though his *Amoenitatum exoticarum politico-physico-medicarum fasciculi v* (Lemgoviae: Typis & impensis Henrici Wilhelmi Meyeri, aulae Lippiacae typographi, 1712) also contain much material which is not botanical, or of Heinrich G. Reichenbach, who titled some of his *Programm*-leaflets *Amoenitates botanicae dresdenses* (Dresden: Arnold, 1820).

[6] See Emmanuelle Valette (ed.), *L'énonciation en catalogue* [special issue], *Textuel* 56 (2008).

[7] For classicists, a useful survey is provided by Marie Ledentu and Romain Loriol, *Penser en listes dans les mondes grec et romain* (Bordeaux: Ausonius, 2020) and by Jack Goody, *The Domestication of the Savage Mind* (Cambridge: Cambridge University Press, 1977), especially 74–111 containing an illuminating chapter on lists in general: "What's in a list?".

classified within the list itself? or to rephrase the second question in other words, why does any given element follow any other? This second question is particularly important on the one hand in situations or societies where the alphabetical order is rare or absent, and on the other hand in poetical texts.

If we are dealing with poetry and plant lists, two classical examples from the *Odyssey* spring to mind, the description of Alcinoos' garden in book 7,[8] and Ulysses' memories of his father's garden in book 24.[9] Coming close to the end of the whole epic, this last description is remarkable, including in one and the same movement a memory of places, a memory of trees and a memory of Ulysses' family.[10] The rhapsode's listener is led to walk in imagination, following Ulysses and his father, from one row of trees to the other, and can thereby measure the paramount strength of family ties. We shall see later that this weight of the place, of the locality, is peculiarly absent from the two texts which we shall study now. I will introduce them in turn.

People who study Greek literature are often acquainted with Meleager of Gadara, who assembled, probably in the first years of the first century before our era, a collection of short poems (epigrams) usually known as the "Garland" (*Stephanos*, Στέφανος). Let us try to give a brief account of the *Garland*'s introductory poem, where Meleager gives us a long list of poets and plants (forty-seven poets and nearly as many plants, although Meleager himself seems to struggle to sustain the comparison-game until the end!). Although this is rather well known, I shall quote the first verses: "Dear Muse, to whom are you bringing this song, full of fruit, or who has wrought this garland of poets? Meleager has achieved it, and he has intended the gracious work as a dedication in memory of Diocles of high fame".[11]

The poet then goes on with his list of poets to be included in the collection, each being compared to a particular flower. Later on, I shall try to compare this poem with another list of plants, a fragment from another Hellenistic poet, Nicander, who left us a list of plants recommended, it might seem, as garden highlights. Meleager's list, as we said, has about 47 plants, Nicander has slightly less (about thirty, depending on how one counts different varieties of the same plant).

I want to stress right from the beginning that even if I happen to discuss, in the course of my essay, as it were, a particular identification, the core of my endeavour lies not with identifications (I might even go so far as to say that, for the time being, identifications of individual species are not at stake), but with the very process of creating a list and with the structure of the collection assembled by the poets, if there is one. Nor will I study both texts line by line; rather, in the short

[8] *Od.* VII, 112–131.

[9] Ibid., XXIV, 336–346.

[10] See Aldo Paolo Bottino, "Space, time and remembering in the orchard of Laertes: a cognitive approach", *Physis kai phyta conference*, January 29, 2021. A first outline of this research is found under https://chs.harvard.edu/wp-content/uploads/2020/11/fdrafts-bottino-space.pdf (accessed March 5, 2025).

[11] Μοῦσα φίλα, τίνι τάνδε φέρεις πάγκαρπον ἀοιδὰν / ἢ τίς ὁ καὶ τεύξας ὑμνοθετᾶν στέφανον; / ἄνυσε μὲν Μελέαγρος· ἀριζάλῳ δὲ Διοκλεῖ / μναμόσυνον ταύταν ἐξεπόνησε χάριν. *AP* IV, 1.1–4 [Mel.].

space of this contribution, I will try to understand how both lists were put together and how far they can be compared with each other. My text of Nicander is taken from the edition of Gow and Scholfield,[12] and my text of Meleager is from Gow and Page's *Hellenistic epigrams*.[13]

Nicander is not as well-known as Meleager, unless one remembers him as an awfully tricky poet, the blight of translation classes, a fearful hoarder of rare words that cause the translator to shudder. I just mentioned "Nicander" in the singular, but inquisitive readers may already know that there are two Nicanders, probably at least two generations apart, and that the attribution of the various poems and fragments transmitted under that name has been a *vexata quaestio* for more than a century. I do not intend to solve the riddle, and I will use the name "Nicander" without further ado, as the name of the author of a fragment from the *Georgics* quoted by Athenaeus in the *Deipnosophists* XV, 682f–684d.[14] We may note that in all likelihood, whether Nicander II ought to be considered a contemporary of Attalus III of Pergamum, who died in 133 BC (as Jean-Marie Jacques and others have thought), or a contemporary of Attalus I, who died in 197,[15] he probably lived *before* Meleager (this would be even more true of Nicander I, a contemporary of Callimachus). The longish fragment (72 verses) we shall be dealing with gives advice for the sowing or planting of various plants, and we have to reflect on the principles which govern the constitution of this list.

I shall begin with Nicander, for the following reason. Among the few elements that are transmitted concerning Nicander (or concerning one of the Nicanders!) through the works of the Scholiasts, we have the following bit of information: "He spent most of his life in Aetolia, as appears from his writings about Aetolia, and also from the rest of his poetry, from the way he tells us about Aetolia's rivers, the places over there and other particulars, moreover from the peculiarities of the plants".[16]

Nothing proves Nicander's *Georgics* are meant here, rather than, say, the *Theriaka* or the *Alexipharmaka* (where plant names are particularly frequent), but it is tempting to infer from such a remark by the Scholiast the idea that Nicander's poetry is firmly anchored in the real, down-to-earth world, and that it owes something to a knowledge of plants *in situ*. One is even

[12] Andrew S.F. Gow and Alwyn F. Scholfield, *Nicander: The Poems and Poetical Fragments* (Cambridge: Cambridge University Press, 1953). I will discuss one particular line later on. I must add that while preparing this article, I fondly remembered Jean-Marie Jacques' conversations and profound knowledge of Nicander's poetry.

[13] Andrew S.F. Gow and Denys L. Page, *The Greek Anthology: Hellenistic Epigrams I: Text* (Cambridge: Cambridge University Press, 1965).

[14] It is the frg. 74 in Otto Schneider, *Nicandrea. Theriaca et Alexipharmaca* (Lipsiae: Teubner, 1856).

[15] The date issue is neatly summarized in Floris Overduin, *Nicander of Colophon's Theriaca* (Leiden/Boston: Brill, 2015), 10–11.

[16] διέτριψε δὲ ἐν Αἰτωλίᾳ τοὺς πλέονας χρόνους, ὡς φανερὸν ἐκ τῶν περὶ Αἰτωλίας συγγραμμάτων καὶ τῆς ἄλλης αὐτοῦ ποιήσεως, ποταμῶν τε τῶν περὶ Αἰτωλίαν καὶ τόπων τῶν ἐκεῖσέ τε καὶ ἄλλων διαφόρων διηγήσεως, ἔτι δὲ καὶ τῶν φυτῶν ἰδιότητος. Annunciata Crugnola (ed.), *Scholia in Nicandri Theriaka* (Milano: Istituto Editoriale Cisalpino, 1971), 34.

tempted to infer that the list in frg. 74 could have something to do with Aetolian plants or gardens. But we shall see that *in a way*, it would be hard to hit further off the mark.

The fragment we are going to deal with tells us how to grow flowers in a garden. Not just any kind of garden: Athenaeus says the quote deals with coronary plants, plants that are supposed to be used to make or adorn garlands (στέφανοι). Here Athenaeus' words (683a): "<Nicander> himself, giving a list of coronary flowers [...]".[17]

Growing coronary plants, then: but is this really the case or should we try and find another reason for the compilation of such a list? Of course, it is possible that Athenaeus' interpretation does not quite fit with Nicander's intent in the passage. The plants quoted do not seem to be food plants (for the most part at least). Nor do they seem to have any other immediate practical or industrial use. Are they medicinal plants? Most of them do, of course, have medicinal virtues, but this does not seem to be what drew the poet's attention to them.[18] Could we think of a bee-garden, such as those that are all the craze these days? We do have a few lists of melliferous plants transmitted by ancient authors. Some are very short, giving but a few examples,[19] and could hardly compare with Nicander's profuse list. But one ancient author, namely Columella, does give an extensive list of melliferous plants.[20] This list is very interesting for its own sake, but we cannot deal with it in detail here: suffice it to say that it mentions far more shrubs and trees than Nicander's list in frg. 74 (fruit trees are particularly appreciated), and that it does insist on what modern botanists call *Lamiaceae*: thyme, oregano, savory are given place of honour. Columella's list, in fact, is quite different from ours. On the whole, then, the idea of a list of coronary plants does seem to be the best one. Indeed a few words of the poet himself, introducing a kind of sub-list within the major list, give us a hint: "or again, all those which gardens produce *as garlands* for the labouring men".[21]

We do not know how the extract chosen by Athenaeus within Nicander's *Georgics* went on, but we can still remark on the last words, which also deal with a kind of garland or crown: "And the lizard-plant,[22] which is called crown of the Nether-God, Leader of the Crowds".[23]

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[17] καταλέγων καὶ αὐτὸς στεφανωτικὰ ἄνθη. Ath., XV, 681d had already used a similar wording a few paragraphs before: "I shall quote the verses in a short while, when telling about coronary flowers" (τὰ δὲ ἔπη ὀλίγον ὕστερον παραθήσομαι, ὅταν περὶ στεφανωματικῶν ἀνθῶν διεξέρχωμαι). Athenaeus, maybe under the influence of his *auctores*, seems to use indifferently στεφανωτικά and στεφανωματικά.

[18] Indeed, many major medicinal plants are not mentioned (Christmas rose, peony, diptam, spurges are all absent), but as we are dealing with a mere fragment, the argument does not carry much weight.

[19] Colum., XI, 39 (*thymum, ros marinus, cunela, serpullum*); *Gp*. XV, 2.5–6: four species are quoted (*thymos, elelisphakon, thymbra, kytison*, θύμος, ἐλελίσφακον, θύμβρα, κύτισον); the list coincides only partially with Columella's.

[20] Colum., IX, 4.2–5.

[21] ἠδ' ὅσα κῆποι / ἀνδράσιν ἐργοπόνοις στεφάνους ἔπι πορσαίνουσιν (l. 53–54).

[22] The plant called *saurē* (att. *saura*; σαύρη, att. σαύρα) is not clearly identified. But it may well be identical with *sauridion* (σαυρίδιον), which is addressed by a gloss in Erotianus: σαυρίδιον, ἣν ἔνιοι καρδαμίδα καλοῦσι, καρδαμῷ ἐοικυῖαν. See Ernst Nachmanson, *Erotiani vocum hippocraticarum collectio* (Upsaliae: Appelbergs Boktryckeri-Arktiebolag, 1918), 79 [Σ 24] and Joseph Klein, *Erotiani: Vocum Hippocraticarum Conlectio* (Lipsiae: Sumptibus Librariae Dykianae, 1865), 117: "A plant which some call 'little cress', being similar to cress".

[23] σαύρην θ', ἣ χθονίου πέφαται στέφος Ἡγεσιλάου (l. 72).

All this[24] contributes to our hypothesis that it is not without reason that Athenaeus chose to quote Nicander's fragment in the section of his work that deals with coronary plants. But we should not give too narrow a definition to that expression. As is well known, and as we shall henceforth confirm, coronary plants (*stephanōmatika*, στεφανωματικά or *stephanōtika*, στεφανωτικά) of the Ancient World are in fact roughly what we would nowadays call "ornamental plants".[25]

It is of course likely that in real gardens, as well as in the way they were represented by painters or poets, ornamental plants and food plants sometimes tended to overlap. It is at any rate the case in Virgil's *Georgics*, in the episode of the Garden of the Old Corycian, with roses and fruit trees growing next to each other.[26] Similarly, Columella's gardens in book X (in verse) and XI (in prose) do not draw a sharp line between ornament and food. And of course, ornamental plants can also be seen by the gardener as a source of income.[27]

But even if we are reasonably convinced that the plants mentioned in Nicander's garden (in our frgt. 74) are coronary or ornamental, this does not tell us where the plants came from. Were they indigenous plants? Did Nicander think one ought to "buy local"? The few verses that deal with roses would certainly not give this impression:

> But of the spiny rose-bush cut the shoots and stick them into furrows, reaching a depth of two palms: first, those which Midas, king of Odonia, as he left his Asian kingdom, used to grow in the fields of Emathia, and which always have a circular crown of sixty petals; and second, those from Nisaea, in the Megarid; and Phaselis is not to be spurned either, nor the city which adores the goddess of the white brow,[28] flourishing near the Magnesian Lethaios waters.[29]

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[24] On top of it all, a recent article by Boris Kayachev, "The Poets's Ivy: Nicander, *Georgica* fr. 74, 17–24", *The Classical Quarterly* 70, no. 2 (2021): 664–671 suggests that vv. 17–24 of Nicander's fragment ought to be emendated and would actually refer not to growing ivy in baskets, but to braiding head-dresses from ivy. The emendations suggested are seductive (though not compelling). Would ivy have been grown in a basket, as v. 21 seems to say in the "classical" version of the passage (i.e. Gow and Scholfield, *Nicander: The Poems*)? It might also have been prepared as an ornamental set for a special occasion; a similar scene (plants interwoven with a pre-existing basket) is perhaps pictured by Colum., X, 277 telluris comas sacris *artate* canistris (v. l. *aptate*).

[25] On this category of *stephanōmatika* (στεφανωματικά)/coronary plants, see also Thphr., *HP* VI, 6. Pliny the Elder also has a whole book concerning the *coronamenta* (book XXI).

[26] Verg., *Georg*. IV, 116–148, particularly v. 134. Some readers have seen in this episode something reminiscent of Nicander's poetry, or indeed in the Old Corycian a figure of Nicander himself: Stephen J. Harrison, "Virgil's *Corycius Senex* and Nicander's *Georgica*: *Georgics* 4.116–48", ed. Monica Gale, *Latin Epic and Didactic Poetry: Genre, Tradition and Individuality* (Swansea: Classical Press of Wales, 2004), 109–123.

[27] Colum., X, 310 (*aere* "money").

[28] On the cult of *Artemis leukophryēnē* (Ἀρτεμις λευκοφρυήνη) in Magnesia, see Str., XIV, 1.40.

[29] αὐτὰρ ἀκανθοβόλοιο ῥόδου κατατέμνεο βλάστας / τάφροις τ' ἐμπήξειας, ὅσον διπάλαιστα τελέσκων · / πρῶτα μὲν Ὠδονίηθε Μίδης ἅπερ Ἀσίδος ἀρχήν / λείπων ἐν κλήροισιν ἀνέτρεφεν Ἠμαθίοισιν, / αἰὲν ἐς ἑξήκοντα πέριξ κομόωντα πετήλοις, / δεύτερα Νισαίης Μεγαρηΐδος · οὐδὲ Φάσηλις / οὐδ' αὐτὴ Λεύκοφρυν ἀγασσαμένη ἐπιμεμφής, / Ληθαίου Μάγνητος ἐφ' ὕδασιν εὐθαλέουσα (l. 9–16).

The roses in question, then, are not wild roses at all, which a sedulous gardener would pick from nearby hills, but garden varieties, which already have, during the Hellenistic period, a long, maybe a very long history of cultivation. They are, of course, kept and reproduced as cuttings (and not from seed).

Our extract might even be dealing with a frankly exotic species. The *libanos* (λίβανος) mentioned by Nicander (53) could be a frankincense tree, a member of the *Burseraceae*-family whose resin had been imported from Arabia or from the Horn of Africa region since very ancient times;[30] Nicander himself had likely never seen a branch of it. Theophrastus too seems unaware of the actual plant (*HP* IX, 4.7), though he had been told that a single tree had once grown in Sardis (*HP* IX, 4.9).

But concerning *libanos*, there is a much more satisfying hypothesis. As we shall insist later on, this *libanos* plant is included in a list of plants reproduced from cuttings, not from seed. This could lead the reader to think of a totally different plant, frequent around the Mediterranean Basin, namely rosemary. Rosemary is usually called *libanōtis* (λιβανωτίς in Ancient Greek, a word derived from *libanos*), and is frequently used for garlands.[31] Nowadays, too, gardeners tend to grow it from cuttings rather than from seed. Though predominantly a West-Mediterranean species, it can also be found in the wild in Greece, where it is nowadays called *dentrolibano* (δεντρολίβανο). It must be noted, however, that the *libanos* of Nicander is only quoted in a kind of secondary list where plants seem to be thrown together rather carelessly.[32]

The other species mentioned seem to belong, broadly speaking, to the category of Mediterranean species. In Antiquity, international trade of (living) plants was obviously much less developed than in later periods. The Renaissance, and even more so the subsequent centuries, have extended trade distances dramatically; the number of species transported grew enormously, and the transport techniques improved. This sometimes makes us blind towards the first "globalization" of plant trade around the Mediterranean (and beyond, if we take into account some resins and spices) during the Hellenistic period. A merchant of the 2nd century BC cannot imagine the amazing botanical variety grown in gardens at the end of the 19th century – say, at the time of the publication of the *Manuel de l'amateur des jardins* by Decaisne and Naudin (1862). But Nicander's garden, with all its species coming from various locations and regions, already shows quite conclusively that it has very little to do with local plants and habitats.

Focusing on the organisation of the list itself, we should also note that the plants chosen

[30] The word is already present in Sappho's text. See frg. 44 v. 30, in Edgar Lobel and Denys Page, *Poetarum Lesbiorum Fragmenta* (Oxford: Clarendon Press, 1963). The two chapters about *libanos* in the *Gp.* XI, 15–16 are very vague and do not necessarily imply an actual cultivation in Syria.

[31] Dsc. *MM* III, 75.

[32] We come back to this secondary list further on.

do not give the impression of belonging to a garden that an observer or the poet himself would be visiting, looking at the varied scenery while walking along the alleys. The part of the text where roses (l. 9–16) are followed by ivy (l. 17–24) makes one think of an opposition between plants grown from cuttings (l. 9–24) and plants grown from seed (*spermati*, σπέρματι), from l. 25 on. But even this rather concrete information seems to be wiped away in the following lines: no clues are given about the reproduction of rose campions[33] and mullein (l. 36).

But those two species (rose campions and mullein) lead us to make an important remark: why are those two mentioned together here, why do they figure, one could say, as a pair? The reason is probably purely literary. Both phytonyms happen to be, originally, metaphors in the Greek language.[34] The rose campion is called "small lamp" (*lychnis*, λυχνίς, cf. *lychnos*, λύχνος "lamp") and the mullein (just as quite a few other plants) is called "wick" (*thryallis*, θρυαλλίς), obviously because of its frequent use as a wick. What could be more natural than to pair the lamp and the wick? This little game seems to have given Nicander a great pleasure, since he made use of it twice, the other occasion being a passage from the *Theriaka*, 899–900: "And all that the rose campion [~lamp] and the reddening[35] mullein [~wick] and the rose and the wallflower produce, inside <their fruit>, as far as small seeds are concerned".[36]

We can almost see here how playing on words tends to warp the space of the projected landscape, nearly thwarting it.

The places mentioned within Nicander's garden (the trench dug for rose-cuttings, l. 10, the pit where ivy-cuttings are to be set, l. 17,[37] a well where creeping thyme – *herpyllon*, ἕρπυλλον, l. 40 – should be planted) all seem strangely detached, they rather look as if they were floating about in a pure list without any reference to the real world.

This apparent lack of reference is particularly visible in the rather long list which comes close to the end of Nicander's extract:

> And all the flowers which the gardens produce, creating garlands for hard-working men. There also the slender ferns and Love-for-the-boys which looks like a white poplar,[38] there grows the saffron

[33] Nothing to do with roses as far as botany is concerned, though: Nicander's *lychnis* (λυχνίς) is probably intended here to mean *Lychnis coronaria* (L.) Desr., commonly known as "rose campion" in English.

[34] In the case of the mullein/*thryallis* (θρυαλλίς), it is more specifically a metonymy, but the distinction is of no avail to us here.

[35] The adjective *ereuthēeis* (ἐρευθήεις) makes us decide for a mullein, against a plantain (*Plantago* species) which could hardly be called "reddening". Several species of mullein, including *Verbascum sinuatum* L., common in Greece, have red spots near the center of the petals. I have never encountered *Verbascum phoeniceum* L. (which is frankly red) in the wild (it is supposed to be native to Central Europe and eastwards), but doubt that it could be used as a wick, having much less down than other species.

[36] ὅσσα τε λυχνὶς ἔνερθεν ἐρευθήεις τε θρυαλλὶς / καὶ ῥόδον ἠδ' ἴα λεπτὸν ὅσον σπερμεῖον ἀέξει.

[37] On this passage, see Kayachev, "The Poets's Ivy".

[38] I have not been able to come to any fixed opinion about the *paiderōs* (παιδέρως)/Love-for-the-boys plant here mentioned. The allusion to white poplar reminds of the plant of the same name (*paiderōs*) cursorily described by Paus., II, 10.5–6.

> which closes in the Spring-time, and the henna-bush and sweet-smelling mint and all the beauties which, on wet and hollow ground, the meadow lets grow without any sowing, the ox-eye and the magnificent flower of Zeus [i.e. carnation],[39] chrysanthemums and hyacinths[40] and violets growing close to the ground, dark – among all the flowers those that Persephone most hates.[41]

Why are some plants *aspora* (ἄσπορα, l. 58)? It obviously does not mean that *they* do not seed, but that the gardener does not sow (*speirō*, σπείρω) them. Does Nicander suggest his reader should leave the garden and go into the wild searching for such plants to make garlands? Does he wish his reader to create one of those wild gardens which are quite a fad nowadays? Not exactly: the idea is rather, I believe, to list the plants which are to be brought to the garden as cuttings and planted there, rather than sown. Such was the meaning of the verses introducing this list (l. 52–54): "What makes the young shoots strong is a deep layer of dung in a bucket, young branches of marjoram or rosemary (?), and all the flowers that the gardens produce, creating garlands for hard-working men…".[42]

Dung in a bucket: we are indeed in the garden, not in the wild. And we are reminded of Theophrastus' observation that some coronary plants are taken from the mountains to be planted in gardens, especially when their germination and/or growth is difficult.[43]

Words and the taste for words are of course of primary importance for a poet, we have already touched on this subject when dealing with *lychnis* and *thryallis*. It sometimes leads Nicander to name plants through periphrastic enigmas, what modern scholars call *kennings*, rather than with their usual, more concrete name. The "old beard" named in verse 71, *geraon pōgōna* (γεραὸν πώγωνα), is likely to mean a flower known in Greek as billy-beard, *tragopōgōn* (τραγοπώγων). We have already mentioned the elusive "Love-for-the-boys" flower (*paidos erōtes*, παιδὸς ἔρωτες, l. 55).

Nature writing has accustomed us at least since the 19th century to a strong spatial refer-

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[39] "Magnificent" is my rendering of *eueides* (εὐειδές), a conjecture proposed by Otto Schneider to replace *euōdes* (εὐῶδες) of the manuscripts: Schneider noticed that Thphr. *HP*, VI, 6.2 and Plin. *HN*, XXI, 59 say that the flower does not have any smell. But some species of carnations do have a peculiar smell, notably so *Dianthus superbus* L., which is present in Northern Greece and frequent in Italy, and might have been recognized as "carnations"/*Diosanthos* (Διόσανθος) and been used in garlands.

[40] Hyacinths (*Hyacinthus orientalis* L.) are native to Anatolia, but have probably been cultivated in Greece at an early period, since we must accept, I think, Suzanne Amigues' cogent arguments, "*Hyakinthos*, fleur mythique et plantes réelles", in Ead., *Études de botanique ancienne* (Paris: Institut de France, 2002), 395–409, particularly 400 on "sowing" hyacinths as a garden flower – actually *planting* side bulbils.

[41] ἠδ' ὅσα κῆποι / ἀνδράσιν ἐργοπόνοις στεφάνους ἔπι πορσαίνουσιν. / ἤ γὰρ καὶ λεπταὶ πτερίδες καὶ παιδὸς ἔρωτες / λεύκη ἰσαιόμενοι, ἐν καὶ κρόκος εἴαρι μύων / κύπρος τ' ὀσμηρόν τε σισύμβριον ὅσσα τε κοίλοις / ἄσπορα ναιομένοισι τόποις ἀνεθρέψατο λειμών / κάλλεα, βούφθαλμόν τε καὶ εὐειδὲς Διὸς ἄνθος, / χάλκας, σὺν δ' ὑάκινθον ἰωνιάδας τε χαμηλάς / ὀρφνοτέρας, ἃς στύξε μετ' ἄνθεσι Περσεφόνεια (l. 53–61).

[42] ἀδρύνει δὲ βλαστὰ βαθεῖ ἐν τεύχεϊ κόπρος / σαμψύχου λιβάνου τε νέας κλάδας ἠδ' ὅσα κῆποι / ἀνδράσιν ἐργοπόνοις στεφάνους ἔπι πορσαίνουσιν.

[43] Thphr., *HP* VI, 7.3.

ence when talking about the environment and the plant or animal species we encounter.[44] We must admit that, despite the scholastic remark alluded to above, there is nothing specifically "aetolian" in the plants listed by Nicander in our passage.

I do not wish to say that the garden Nicander instructs us to sow and plant is entirely unreal. However, it is conceived as a collection of species, independently from their place in any real or imaginary mapping. The reader soon feels as if they are leafing through a botanical garden or nursery catalogue. This, in fact, contributes to making the list itself more appropriate for an ornamental garden than for a vegetable or even medicinal garden. We are thus closer to the Florilegium than to a Greek or Mediterranean Flora. And just as the Florilegium tends to become a work of art in its own right, out-drawing, as it were, the garden itself, so too does the poem, by playing with words and their associations, transcend the spatial limits of the garden and creates a new vision – or *regard* – for the imagination of the gardening reader.

Meleager's text (*Palatine Anthology*, IV.1), to which I am now coming, is not giving instructions for the growing of coronary plants, it *is* the garland itself. A garland (*stephanos*, στέφανος in Greek) is a plaiting of flowers one may wear as a head-dress or sometimes as a necklace. The Greeks of Antiquity loved flower garlands, at least since Anacreon and the archaic period,[45] and the Hellenistic period further developed this tendency. The garlands or crowns are associated with feasts, whether it is after victories in various competitions, during religious feast-days or on the occasion of various parties. Flower garlands, at least as much as flowers in vases or any other kind of decorative use of flowers, are the main use of flowers as ornament, so that at least from the Hellenistic period onwards, the Greek word for coronary flowers (*stephanōtika*, στεφανωτικά or *stephanōmatika*, στεφανωματικά) became equivalent to our modern concept of "ornamental" flowers.[46]

In the poem that introduces Meleager's *Garland*, each poet (or at least the main poets of whom Epigrams have been chosen in the selection) is associated with and symbolized by a flower. The sum of all these "flowers" makes up a kind of braiding which deserves to be called "garland". Lots of reasons have contributed to this association: garlands and poetry are both linked with banqueting, especially (during the Hellenistic period) epigrammatic poetry. Garlands are also a hint that the poet wishes to be victorious in poetry competitions, to be crowned in either an official or an informal meeting. And garlands (and flowers) are symbols

[44] At least since the publication by Gilbert White, *The Natural History and Antiquities of Selborne* (London: T. Bensley, for B. White and Son, 1789).

[45] See for ex. frg. 51 and 65 *PMG* (twice in a sympotic context). The hellenistic *Anacreontea* have obviouly recognised the garland as a typical feature of Anacreon's poetry, and they use the word frequently. An isolated mention of head-dresses (*stephanas*, στεφάνας in the feminine) for girls is made in *Il.* XVIII, 597, but does not necessarily refer to flower-garlands.

[46] This is particularly the case in Athenaeus great compilation, written at the turn of the 2nd/3rd century of our era.

of luxury. They are, in fact, the ornament *par excellence*. Maybe there is still one more reason: poets reading or listening to their predecessors' works have been compared with bees travelling from one flower to the other in order to collect honey (or more precisely the nectar out of which they make honey).[47] From one metaphor to the other, the passage was easy.

Since our passage is in fact a long metaphor – or even a string of comparisons –, it should be obvious that Meleager's list is not a botanist's list. Ancient science, in any event, did not produce anything like our modern taxonomies. And Meleager's plant names, like Nicander's, may well have been chosen not for their precision, but for their poetical quality. One may ask, for example, if "Sikelides' flowers, which grow in the wind",[48] is not a kind of "double kenning": Sikelides is obviously Asklepiades, following an usage which the *Scholia in Theocritum* have made well known.[49] But "the flowers that grow in the wind" could well be anemones, a flower whose Greek name (*anemōne*, ἀνεμώνη) means "flowers of the wind". Another example is the plant known as *buphthalmon* (βούφθαλμον), which Meleager, by re-motivating the compound noun, calls *omma boos* (ὄμμα βοός), "ox eye". And one may even surmise that some of the species mentioned do not represent real flowers at all: I am thinking in particular of "Plato's golden bough".[50]

On top of that, the list does not look exhaustive[51] – it looks decidedly haphazard. It has more flowers than any real garland would ever contain. Still, one does not understand what limits its scope or extent, unless the limit has to do with the number of authors; but in fact, the list of authors is not complete either, since it ends with the remark "and many other young shoots, newly engraved by other poets".[52]

Several other elements come as surprises in Meleager's list. One would have expected to come across herbaceous plants mainly, or at least plants likely to bend easily (so as to be able to be braided into a garland). In fact, several species show up that it would not be very easy to make into a garland, like the plane-tree (l. 17), or Simias pear-tree (l. 30), not to mention an apple "taken from Diotimos' branches"[53] – this would indeed imply a very strong garland! But maybe the ancient craftsmen were defter than one would think. Some species also cause

[47] For a nearly complete overview, see Jan H. Waszink, *Biene und Honig als Symbol des Dichters und der Dichtung in der griechisch-römischen Antike* (Opladen: Westdeutscher Verlag, 1974). The image is familiar to English speaking readers because of its use in Jonathan Swift's *Battle of the Books* (1704), where the Bee, representing Ancient poets, takes "sweetness and light" from the flowers of Nature.

[48] Σικελίδεώ τ' ἀνέμοις ἄνθεα φυόμενα (l. 46).

[49] *Σ ad Thcr*. 7, 21b & 40a.

[50] "The forever golden bough of the divine Plato" (χρύσειον ἀεὶ θείοιο Πλάτωνος / κλῶνα, l. 47–48).

[51] Exhaustivity is of course by itself not a criterion of scientific writing, and even biologists may write incomplete lists: we may think of Geoffrey Taylor, *Some British Beetles* (Middlesex: Penguin Bks, 1948).

[52] ἄλλων τ' ἔρνεα πολλὰ νεόγραφα (l. 55).

[53] καὶ γλυκύμηλον ἀπ' ἀκρεμόνων Διοτίμου (l. 27).

us to wonder if their very smell should not have prevented them from being chosen, like terebinth (l. 30), but then again, tastes and olfaction, too, have a history of their own.

There is also the problem of the seemingly arbitrary comparison between poets and flowers. Of course one might think that the rose, a flower associated with love in Hellenistic poetry,[54] is a fitting metaphor for Sappho's poetry (l. 6), a poet with the reputation of a lover.[55] Or that myrtle, sweet and astringent at the same time, becomes Callimachus, whose verses are sometimes harsh (l. 21–22). But to come back to roses, it might have seemed even more natural to think of Nossis in connection with that flower, since an epigram by her,[56] chosen by Meleager himself for the *Garland*, claims that her poetry is associated with roses and love, in a way that reminds us of Meleager's verses (l. 9–10) in the prefatory list we are now reading: but Meleager chooses the iris instead. As often, Hellenistic poets play hide and seek with the expectations of their readers.

Close to the beginning of Meleager's piece, Anyte and Moero are introduced as two flowers which the Greek language often does not distinguish: "weaving together many lilies (*krina*) of Anyte, many lilies (*leiria*) of Moer".[57]

There are obviously many monocotyledonous bulbs in the Mediterranean flora that could be called "lilies" – though narcissus, for one, is already used in the next verse (l. 7, Melanippides). But in accordance with what we have already said, it is tempting to read here an allusion to a gloss well known in Antiquity for its difficult ambiguity: Dioscorides underscores the ambiguity of *leirion* (λείριον),[58] and Nicander himself had alluded to it in the fragment mentioned above: "Plants which some among the poets name *krina*, others *leiria*".[59]

It would seem that the two poets Anyte and Moero, often mentioned together (for example in an epigram by Antipater Thessalonicensis, *AP* IX, 26), are in fact "of the same flower". Those games on words and plant-names are reminiscent of the way Hellenistic poets love to play with Homeric *hapax legomena*.[60]

The sheer number of flowers described in the Garland, as well as the difference in their flowering seasons,[61] imply that those prefatory verses should be seen as a literary exercise rath-

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[54] One only needs to leaf through book 5 of the *Palatine Anthology* (the book which collects the erotic epigrams) to notice that roses (and *rose-buttocks* and *rosy skin* and so on) are rather frequent.

[55] Sappho was already in Hellenistic times believed to have been a passionate lover, cf. for example the legend of her love for Phaon and her *katapontismos* from the cliff in Leucadia/Lefkada, mentioned in a comedy of Menander and quoted by Str., X, 2.9. Sappho herself occasionally mentions the rose (frg. 55 and 96): the flower is called *brodon* (βρόδον) with initial digamma in the Lesbian dialect.

[56] *AP* V, 170.

[57] πολλὰ μὲν ἐμπλέξας Ἀνύτης κρίνα, πολλὰ δὲ Μοιροῦς / λείρια (l. 5–6).

[58] Dsc., *MM* III, 102.

[59] ἃ κρίνα, λείρια δ' ἄλλοι ἐπιφθέγγονται ἀοιδῶν (l. 27).

[60] Meleager maybe has in common with another passage by Nicander a very rare form of the name for *mint* in Greek: the non-diminutive *sisymbron* (σίσυμβρον) (Meleager l. 19 in our passage, Nic. *Ther*. 896). But the quantity of the initial iota (short in Meleager, long in Nicander) blurs the issue.

[61] We are reminded of the objection made by Theocritus *Cyclops* to himself (Theoc., *Idylls* XI, 58) when he dreams of the bouquet he wishes to offer to his lover.

er than as the offering of a real garland to Meleager's dedicatee. Many readers did find Meleager's programmatic text rather artificial.[62]

It did nonetheless enjoy a certain popularity: it served as a model for the introductory poem of the *Garland* of Philip (*AP* IV, 2),[63] a little more than a century later; this last poem, even more than Meleager's, sounds very artificial, with its list of thirteen flowers unpacked in the space of seven verses, and its casual conclusion: "as to other poets, compare them to whichever newly grown flowers you wish"[64] – one notices that if something attracted Philip in Meleager's poem, it was not its realism. The general idea of a comparison between flowers and poetry becomes part of the literary idiom with Diogenianos' *anthologion* (ἀνθολόγιον), usually dated to Hadrian's reign,[65] and a prelude to what we now find in the various modern European languages.

How did our poets choose their flowers? Whatever the artificial character of the piece, which we have just underlined, the species mentioned surely meant something to the minds of the readers or listeners. The number of species is limited (47 for Meleager, about 30 for Nicander), but all of them have a kind of ethnobotanical importance in the Greek world, whether they are species grown in Greece proper or in the Hellenic world during the Hellenistic period, or plants known to the Greeks for various reasons.

Let us come back once more briefly to the subject of exotic species. Be it in Ancient Syria, where Meleager was born, or in Anatolia where Nicander lived, or in a literary Greece where either poet might fictitiously place his bunch of flowers, some species mentioned do seem exotic. The *amōmon*, ἄμωμον (Meleager, l. 23), which is likely to have been a *Zingiberacea* from the Indian sub-continent (maybe our cardamon), has been known in Greece at least since Theophrastus. But when we read the passage where it appears, we wonder again whether the word is there only to make a word-play with the quality attributed to the poet alluded to, Dioscorides,[66] whose name is replaced by a transparent kenning: "And the faultless *cardamon* within the artists' world, the poet whose name comes from Zeus' twins"[67] (the translation tries to convey the fact that *amōmon* means at the same time "cardamon" and "faultless").

Such a game would be quite Alexandrian. A few verses further on, could Nikainetos, a poet

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[62] Gow and Page, *The Greek Anthology*, 596: "A hopeless task… tedious". Henri Ouvré, *Méléagre de Gadara* (PhD diss., Paris, 1894), 132–133 and 178 studies but cursorily the prefatory poem, but some of his general judgements on Meleager concur with Gow's: "On s'en consolerait aisément si elles étaient authentiques, mais il y a bien des fleurs artificielles dans la *Couronne*" (on Meleager's choice of epigrams. Ibid., 79), and "Il y a de la stérilité dans cette abondance […] Sans même y prendre garde nous rapprochons les images qui passent devant nous, et nous les classons dans notre mémoire comme les papillons d'une vitrine" (ibid., 196).

[63] Andrew S.F. Gow and Denys L. Page, *The Greek Anthology II: The Garland of Philip and some Contemporary Epigrams* (Cambridge: Cambridge University Press, 1968).

[64] τοὺς δὲ περισσούς / εἴκασον οἷς ἐθέλεις ἄνθεσιν ἀρτιφύτοις.

[65] See Hans Gärtner, "Diogenianos" (2), in *Kleiner Pauly*, vol. 2, col. 48–49.

[66] The Hellenistic poet has nothing to do with the doctor of the same name, author of the *MM*.

[67] ἰδ' ἐν Μούσηισιν ἄμωμον, / ὃς Διὸς ἐκ κούρων ἔσχεν ἐπωνυμίην (l. 23–24).

from Abdera, be compared to myrrh shoots (*smyrnaious te kladous*, σμυρναίους τε κλάδους, l. 29)? This would be surprising, since myrrh, a common import product, was probably known to most Greeks only as resin. But Theophrastus (IV, 4, 12) does seem to have heard of a kindred member of the *Burseraceae*-family as an actual tree, and Dioscorides (somewhat later than Meleager, though) does describe the plant correctly as "a spiny tree growing in Arabia".[68]

But I do not think that exotic plants and their identification is what is at stake here. The presence of exotic plants is important mainly because it helps us to put into perspective the real or spatially determined character of the flower-lists we are dealing with.

Maybe we would like the catalogues we are reading to correspond to a kind of journey along a particular route, be it real or imaginary, where the poet's memory would have planted, so to speak, the flowers quoted, which he could then pick one after the other, on his wandering tour in the hills around his city in Greece or Greek-speaking Asia. This would be in accordance with the word *anthology* which we mentioned earlier (i.e. flower-picking), and we would remember the fresco found in Stabia, picturing, purportedly, the goddess Flora (now in Naples' Archeological Museum: Fig. 1), and its main character leisurely walking along and picking flowers for her bouquet at the same time. While acknowledging the interest of numerous studies linking human memory with our feeling of the space around us,[69] it is important to insist that this is not what we have here. Two of Meleager's poets, Posidippos and Hedylos, are called "wild flowers of the ploughed earth": while "wild" might indeed suggest the vast spaces of the rural hinterland, we rather focus on "ploughed earth". The plants of both our lists are in fact collected because they are *garden* or *cultivated* plants. They have been acclimatized for a long time, they have been transported and sold, at times, through a kind of early small-scale globalization.

About ten species are common to both our lists (Nicander and Meleager).[70] They are species which their very ordinary character, I might venture to say, makes extraordinary, and that will be found again and again all along the history of (literature working on) gardens.[71] These

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[68] We might add that Dsc., *MM* I, 65 mentions a tree growing in Boeotia with the same name, and that Thph., *HP* IX, 1.4 says that the alexander plant (*Smyrnium olusatrum* L.) or a resin made from it, was sometimes confused with myrrh.

[69] We think of Frances A. Yates, *The Art of Memory* (London: Routledge & Kcgan Paul, 1966); but also of Robert Macfarlane, *The Old Ways* (London: Hamish Hamilton, 2012), on the links between walking, memory and vocabulary.

[70] A tentative list: *bouphthalmon* or *omma boos* (βούφθαλμον or ὄμμα βοός) [some kind of *Asteracea*]; *herpyllon* or *herpyllos* (ἕρπυλλον or ἕρπυλλος) [creeping thyme]; *ia* (ἴα) [violets or wallflowers or both]; *iris* (ἶρις) [iris]; *kissos* (κισσός) [ivy]; *krina* or *leiria* (κρίνα or λείρια) [lilies]; *krokos* (κρόκος) [saffron]; *kypros* (κύπρος) [henna]; *lychnis* (λυχνίς) [rose campion]; *rhoda* (ῥόδα) [rose]; *sisymbrion* or *sisymbron* (σισύμβριον or σίσυμβρον) [mint]; *hyakinthos* (ὑάκινθος) [hyacinth]. *Anthemion* (ἀνθέμιον) in Meleager is probably not very different from *anthemis* (ἀνθεμίς) in Nicander (they would both belong to the *Asteraceae*-family anyway).

[71] Most are found again in *Gp*. XI, whose subject is given as follows by the Epitomator: τὰ στεφανωματικὰ τῶν δένδρων, καὶ τὰ ἀείφυλλα καὶ φυτείαν ῥόδων καὶ κρίνων καὶ ἴων καὶ τῶν λοιπῶν εὐωδῶν ἀνθέων. "Trees used as

Fig. 1. Fresco from Stabia (Villa di Arianna), picturing, purportedly, the goddess Flora. 38x32 cm. Napoli, Museo Archeologico Nazionale. © Wikimedia Commons.

stars are particularly singled out into the limelight at the beginning of Meleager's poem,[72] as if he wished to celebrate them before turning to the rarities, or to plants that have a more dubious claim as coronary flowers. The lexicographer Pollux, at the beginning of the 2nd century of our era, gives a quite similar list when he provides a general list of flowers (I, 229): "Roses, lilies, violets, saffron, lotos, daffodil, hyacinth, mullein, mint, creeping thyme, anemones".[73] A second list of Pollux specifically enumerates coronary flowers (VI, 106): "In garlands: roses, violets, lilies, mint, anemones, creeping thyme, saffron, hyacinth, immortelle, day-lily, elecampane, mullein, chervil, daffodil, sweet yellow clover, marguerite, *parthénis*".[74]

In those various lists, we find both well-known luxury flowers and (equally well known) commonplace plants. When reading a treatise like Dioscorides' *De materia medica*, which is in a way quite close to a modern flora, inasmuch as it is a "super-list" of plants[75] (and animals and stones), we might ask what plants he uses as a basis for comparing unknown plants and making them recognizable. The plants used in comparisons are often the same, and this allows us to constitute a group of well-known plants, which everybody is supposed to know.[76] Most of the plants in this list are food plants, as could have been expected: olives, purslane, lentils, rue... were very often found on the dinner table. But within the list, we also find coronary plants, like ivy, lilies, and a *phlomos* (φλόμος) which is probably not very different from Nicander's *thryallis*, a mullein (genus *Verbascum*). Those plants are everyday plants: they grow spontaneously around the Mediterranean, but they can *also* be cultivated, especially with regard to large-scale banqueting as it was often staged in Greece (lots of garlands needed!).

We can consider small-scale importations for gardens, such as when creeping thyme (*herpyllon*, ἕρπυλλον) from Mount Hymettos was transplanted into Athenian gardens to be grown for ready use.[77] However, plants were already being cultivated by highly specialised farmers during the Hellenistic period. Saffron, mentioned by both of our poets, was already exported from Cyrenaica at the time of Theophrastus,[78] as were roses, it seems.[79]

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coronary plants; plants with evergreen leaves; planting roses, lilies and violets, and other sweet-smelling flowers".

[72] The poem is 58 verses long. Of the 12 flowers quoted above, 10 come before l. 23.

[73] ῥόδα, κρίνα, ἴα, κρόκος, λωτός, νάρκισσος, ὑάκινθος, θρυαλλίς, σισυμβρία, ἕρπυλλον, ἀνεμῶναι.

[74] τὰ δ' ἐν τοῖς στεφάνοις ἄνθη ῥόδα, ἴα, κρίνα, σισύμβρια, ἀνεμῶναι, ἕρπυλλος, κρόκος, ὑάκινθος, ἑλίχρυσος, ἡμεροκαλλές, ἑλένειον, θρυαλλίς, ἀνθρίσκος, νάρκισσος, μελίλωτον, ἀνθεμίς, παρθενίς. As I warned before, my purpose is not so much, for such long lists where hardly any context is given, to *translate*, as to give a general taste of what the *bunch* is like.

[75] Dioscorides' treatise lists more than 600 species of plants.

[76] Here is the list of the plants quoted more than seven times in comparisons in Dsc., *MM*: olive-tree, ivy, lentil, rue, dill, fennel, lily, coriander, mullein, purslane, lettuce, oregano. The plant which I have translated as mullein, *phlomos* (φλόμος), is probably quite similar to Nicander's *thryallis* (θρυαλλίς: same genus).

[77] Thphr., *HP* VI, 7.2.

[78] Ibid., IV, 3.1.

[79] Ibid., VI, 6.5.

Saffron might have been used as a condiment, but most probably the two uses (culinary and "coronary" or aesthetic)[80] were intertwined. Roses make a very interesting case: Theophrastus tells us that wild roses from the region of Philippi (northern Greece), known for the density of their petals, were transplanted in order to become cultivated.[81] And we know that Harpalos had vainly tried to acclimate ivy in the pleasure-parks (the *paradeisois*, παραδείσοις) of Babylon.[82]

In the same vein, we must remember that the advice given in Theophrastus' *De odoribus* for the preparation of perfumes points to a booming industry rather than to small local craftsmen – I am thinking for example of the preparation of rose and henna oils with the addition of exotic spices (*arōmata*, ἀρώματα). It would be natural to think that the production of coronary plants followed a similar course, and that they were cultivated rather than picked in the wild.[83]

It may seem incongruous to compare living wild plants to plant names in a list. But plants in a list do have something in common with *cultivated* plants. They appear each in its place in the list, neatly separated, like rows in a nursery.[84] On the contrary, wild plants growing in woods or *phrygana* are all mixed together, competing as it were in a confused struggle to define the facies of the plant community. The difference lies not so much in numbers as in organisation. The specific relationship that human beings and plants develop with the emergence of (agri-)culture ultimately leads to the appearance of the catalogue.

What I have wanted to show when bringing together those lists was that there is a kind of logic to Meleager's collection, at least as far as the choice of species is concerned. Like Nicander's, this list is a best-of of ornamental (garden) plants. These two lists, because of their abundance, because of their very form as lists in poems, are witnesses to a peculiar historical moment within garden history, when the Greeks, influenced by Eastern civilisations and specifically by Persians, have made their own garden culture much richer and deeper.[85] In the same period (that is, after Alexander), their written culture was experiencing a similar movement of expansion.

There is another, more ancient plant list in poetry, of which I have not spoken yet: it is

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[80] At the time of Dioscorides (*MM* I, 26.1) a distinction is made between medicinal uses of the saffron plant, condimentary uses, and tinctorial uses. No mention of "coronary" uses is made for saffron in *Materia Medica* (mentions of coronary uses are seldom found there, being somewhat alien to the subject of the treatise, though we saw one before concerning rosemary: *libanōtis*, λιβανωτίς).

[81] Thphr., *HP* VI, 6.4.

[82] Ibid., IV, 4.1.

[83] For the Roman side of those semi-industrial flower fields, the main documents are conveniently gathered by Jack Goody, *The Culture of Flowers* (Cambridge: Cambridge University Press, 1993), 58.

[84] The Greek word *stichos* (στίχος) can mean a verse or *line* of poetry or a *row* of trees in an orchard.

[85] On the "culture of flowers" in the Ancient Mediterranean Sea before the Greeks, André Wiese and Christiane Jacquat, *Blumenreich. Wiedergeburt in Pharaongräbern, Katalog der Austellung des Antikenmuseum Basel, Sept. 2014–Febr. 2015* (Basel: Antikenmuseum Basel und Sammlung Ludwig, 2014), is a must-read.

a fragment of Cratinos' comedy, *Malthakoi* (Μαλθακοί):[86] "I am covering my head with all kinds of flowers, daffodils, roses, lilies, larkspurs, wallflowers, and then mint, the spring flowers of the anemones, creeping thyme, saffron, hyacinths, branches of immortelle, vine and the beloved day-lily †[87] and my head is in the shade of the sweet yellow clover, always standing guard, and alfalfa came all on its own from Medon".[88]

The list as it stands is a mere accumulation with hardly any embellishment, in accordance with the taste of the Old Comedy (one thinks of the *Kōmos* at the end of Aristophanes' comedies, wildly piled with various foodstuffs). It already contains quite a few of the coronary flowers we meet later on. It gives, in a way, a first glimpse into a literary phenomenon of great promise. But when the lists concur with each other to outline for us something like a nursery catalogue, we are not merely on the track of *literary* tastes anymore. To become aware of such evolutions in the relationships between plants and human beings, we must take the plants into account not so much as individual species, but as groups or series, we must try and understand how such series are imagined and repeated, so that we may, for example, get a better grip of such a category as "coronary plants".

All this brings me to a conclusion that goes against the prevailing opinion, to which I have already alluded: according to some, Meleager's (and Nicander's) lists are examples of a highly artificial kind of poetry, without any connection with the world around them. On the contrary, I think that this poetry, whatever its defects, is very much in harmony with human beings' efforts to (re-)create and inhabit the world. Both poems actually tell us something about nature recreated as a garden, but which is nonetheless real, and they show it to us, in their way, provided we listen to the meaning of their collections. They are quite coherent, in that they both put into words a fashion which surely was not only literary, but also horticultural, and their words are rather similar, whatever their overall differences (Meleager's piece being much more metaphorical than Nicander's).

Gardens and the so-called *locus amoenus* have often been seen as the ideal scenery for love (because of Theocritean idylls particularly). Hellenistic poetry, on the other hand, is seen as poetry for banquets and/or libraries. With the help of Nicander and Meleager, we have wanted to highlight here that gardens are also a place for (Hellenistic) poetry, and that gardens do not only offer shade – they also offer fascinating collections of words, and they are (also) a (real) place where you may discuss, for example, all the complexities of grafting and the

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[86] Quoted by Ath., XV, 685bc = Kassel and Austin, *PCG IV*, Cratinus 105 (p. 174). The title, likely to have been derogatory or mocking, could be translated as "the pansies" or maybe "the limp-wristed".

[87] One of the verses of the passage is corrupt and apparently beyond repair.

[88] παντοίοις γε μὴν κεφαλὴν ἀνθέμοις ἐρέπτομαι, / λειρίοις ῥόδοις κρίνεσιν κοσμοσανδάλοις ἴοις / καὶ σισυμβρίοις ἀνεμωνῶν κάλυξί τ' ἠριναῖς / ἐρπύλλῳ κρόκοις ὑακίνθοις ἑλιχρύσου κλάδοις / οἰνάνθῃσιν ἡμεροκαλλεῖ τε τῷ φιλουμένῳ, / † ἀνθρυσκισσου φόβῃ † / / τῷ τ' ἀειφρούρῳ μελιλώτῳ κάρα πυκάζομαι / καὶ <...> κύτισος αὐτόματος παρὰ Μέδοντος ἔρχεται.

problēmata (προβλήματα) pertaining to it, as Plutarchus would tell us much later: "Soclaros was treating us in the gardens circled by the Cephisos, and showed us trees that had been made motley by what they call grafting".[89]

Nicander's poetry and Meleager's laborious list both hint at such idyllic possibilities.

[89] Σώκλαρος ἑστιῶν ἡμᾶς ἐν κήποις ὑπὸ τοῦ Κηφισοῦ ποταμοῦ περιρρεομένοις ἐπεδείκνυτο δένδρα παντοδαπῶς πεποικιλμένα τοῖς λεγομένοις ἐνοφθαλμισμοῖς. Plu., *Quaestiones convivales* II, 6 (640b).

Nouvelles approches pour l'étude des plantes en Égypte gréco-romaine autour de deux études de cas (pommiers et sébestiers)

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/ Abstract

Cet article présente un projet de recherche récemment initié sur les arbres fruitiers de l'Égypte gréco-romaine, s'appuyant sur la nouvelle base de données en ligne « *Ergaleion* – Outil de lexicographie papyrologique de la vie matérielle ». Conçu dans le cadre d'un projet collaboratif dédié à l'étude lexicale des réalités matérielles à travers la documentation papyrologique (V^e^ siècle av. J.-C.–VIII^e^ siècle apr. J.-C.), cet outil numérique constitue une ressource particulièrement précieuse pour l'examen des plantes mentionnées dans les papyrus grecs. En permettant une approche systématique, diachronique et interdisciplinaire, il offre la possibilité de croiser les sources textuelles avec les données archéobotaniques et de rendre accessibles en ligne les textes et données étudiés. Cet article propose ainsi un premier aperçu des résultats de cette enquête en cours, en mettant l'accent sur une sélection d'arbres et de fruits méconnus, certains d'introduction tardive en Égypte, tels que les pommes, les coings et les poires, et d'autres déjà cultivés localement, tels que les sébestes.

The paper presents a recently initiated research project focusing on fruit trees in Greco-Roman Egypt, which benefits from the freshly minted online database "Ergaleion – *Outil de lexicographie papyrologique de la vie matérielle". Conceived as part of a collaborative project to assist the lexical study of material aspects of life as reflected in the papyrological documentation (5^th^ century BCE–8^th^ century CE), this digital tool proves particularly useful for the identification and study of plants mentioned in the Greek papyri. It enables a more systematic, diachronic, and interdisciplinary approach by cross-referencing textual sources and archaeobotanical data, and presents the investigated evidence online. Accordingly, this paper offers an initial overview and results from an ongoing investigation, commencing with a selection of lesser-known trees and fruits, some new to Egypt: apples, quinces, pears, and some already cultivated there: Assyrian plums.*

/ Keywords

Ancient fruit cultivation; Greco-Roman Egypt; Digital humanities.

La documentation papyrologique grecque, aussi riche soit-elle pour qui souhaite étudier l'exploitation des plantes dans l'Égypte gréco-romaine, ne vient pas sans son lot de défis dès lors qu'on essaye de rapprocher phytonymes et réalités botaniques anciennes. Du côté des sources textuelles, et hormis les défauts inhérents à la documentation papyrologique, lacunaire à bien des égards – que ce soit du fait de son aspect fragmentaire ou de la couverture disparate des régions et des périodes –, l'étude des phytonymes implique, sur la longue période couverte par la documentation grecque (du III^e^ s. av. J.-C. jusqu'au VIII^e^ s. après J.-C.), des évolutions lexicales entre formes classiques et formes « tardives », parfois des remplacements d'un nom par un autre ou encore des vides suggérant l'absence de la plante. Les vestiges archéobotaniques peuvent alors se révéler d'un apport précieux pour établir la présence de telle plante – sinon sa culture du moins son exploitation – dans l'environnement matériel égyptien de l'époque. Néanmoins ces vestiges ne viennent évidemment pas sans leur propre lot de défi interprétatif : les analyses archéobotaniques, surtout anciennes, ne sont pas toujours fiables, leur datation souvent très ample et les contextes peu précis. Quant aux analyses plus récentes, qui pallient autant que faire se peut ces défauts, si elles se sont multipliées sur les sites du désert Oriental ou des oasis, elles restent encore peu nombreuses pour la période gréco-romaine, notamment pour les sites de la vallée de Nil ou du Fayoum. La réconciliation exploratoire de ces deux types de sources est ainsi au fondement d'un axe du programme conduit à l'Institut français d'archéologie orientale (Ifao) intitulé « *Realia* d'Égypte, de l'époque ptolémaïque aux débuts de l'Islam » au cœur duquel a été développée la base de recherche en ligne « *Ergaleion* – outil de lexicographie papyrologique de la vie matérielle ».[1] Permettant d'enregistrer conjointement et collaborativement les données papyrologiques (grecques mais aussi démotiques ou coptes) et archéologiques et de visualiser les localités associées sur des cartes, cette base est devenue l'instrument grâce auquel on espère pouvoir systématiser la confrontation des sources disponibles pour affiner la compréhension de l'environnement matériel ancien sur le temps long, notamment autour des plantes, et partager à un public plus large les données de l'Égypte gréco-romaine.

C'est ainsi dans ce cadre et avec cet outil qu'on se propose de travailler sur les arbres d'Égypte. Après la finalisation d'une première partie de ce projet concernant les arbres exploités pour leur bois d'après les sources papyrologiques grecques qui proposait des études approfondies de l'acacia, du figuier sycomore, du jujubier, du perséa, du saule et tamaris et d'autres bois importés,[2] restent à être soumis à une nouvelle étude les arbres fruitiers ou ornementaux. C'est de ces derniers qu'on souhaite livrer ici un premier aperçu à travers une confrontation de deux études de cas : l'un portant sur un ensemble de fruitiers grecs nouvellement introduits

[1] Le programme est dirigé par P. Ballet, M. Mossakowska-Gaubert et V. Schram. Ouverte au public en 2023, la base est accessible sur le site https://heurist.huma-num.fr/Ergaleion/web (dernier accès le 24 mars 2025).

[2] Valérie Schram, *L'arbre et le bois dans l'Égypte gréco-romaine* (Paris : Association des Amis du Centre d'Histoire et Civilisation de Byzance, 2023).

à l'époque hellénistique – poirier, pommier et cognassier – et l'autre sur un fruitier réputé d'introduction plus ancienne et quelque peu oublié, le sébestier. Dans l'un et l'autre cas, c'est la base Ergaleion qui permet d'enregistrer au fil de l'eau les attestations textuelles, archéobotaniques ou encore ethnographiques, et partant de vérifier l'identification botanique des phytonymes et de faire ressortir les tendances liées aux modes de culture et d'exploitation qui se dégagent au fur et à mesure de la confrontation de leurs contextes d'apparition – sans qu'elles puissent avoir un visage définitif tant que toutes les espèces n'auront pas été soumises au même traitement.

1. À propos de fruitiers du monde grec : poiriers, pommiers et cognassiers

Les expérimentations de Zénon

L'entreprise de révision de l'identification des plantes commence nécessairement par les archives de Zénon, connues pour garder le précieux témoignage d'une entreprise arboricole commanditée par Apollônios, ministre des finances de Ptolémée II, fin connaisseur de plantes et détenteur d'un grand domaine à Philadelphie, dans le Fayoum, administré par Zénon au milieu du III^e^ s. av. J.-C. La correspondance de ce dernier, qui constitue une des plus importantes archives papyrologiques, est ainsi particulièrement riche en phytonymes dont il n'est pas toujours facile de se représenter les réalités botaniques qu'ils cachent. Néanmoins, la proximité chronologique avec les travaux de Théophraste et l'origine carienne de Zénon permettent de faire l'hypothèse d'une égale proximité dans la connaissance des plantes considérées et de leur désignation, d'autant qu'on retrouve nombre de plantes typiques du monde grec dans ces archives.[3] Ainsi, la comptabilité conservée dans le *P.Iand.Zen*. 54[4] qui contient une liste de fruitiers montre sans trop de difficultés la mise en culture de 1150 oliviers (*elainōn*), 9 grenadiers (*rhoōn*), 40 poiriers (*apiōn*), 130 myrtes (*myrsinēs*), de figuiers (*sykinōn*) et de pommiers (*mēleōn*) dont le nombre est perdu et encore de « pommiers du printemps » (*mēleōn ear[inōn*).[5] Parmi tous ces fruitiers, si les oliviers, figuiers et grenadiers ne sont pas nouveaux en Égypte, les poiriers, pommiers, myrtes et pommiers du printemps correspondent vraisemblablement à de premières tentatives d'acclimatation.[6]

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[3] Pour une approche croisée sur les fruitiers du monde grec, voir maintenant Clémence Pagnoux, « Fruitiers connus et cultivés en Grèce du Néolithique à l'époque romaine. Confrontation des données archéobotaniques et des sources écrites », *ArchéoSciences* 43, no. 1 (2019) : 27–52.

[4] Les sources papyrologiques sont citées conformément aux usages de la « Checklist of Editions of Greek, Latin, Demotic, and Coptic Papyri, Ostraca, and Tablets » fondée par John F. Oates et William H. Willis et disponible en ligne : https://papyri.info/docs/checklist (dernier accès le 24 mars 2025).

[5] *P.Iand.Zen*. 54, l. 11–13 : ἐλαίνων Αρν, μηλεῶν ἐαρ[ινῶν | ῥοῶν θ, ἀπίων μ, μηλεῶν.[|].ν, μυρσίνης ρλ, συκίνων.[.

[6] On retrouvera des notices sur les fruitiers de l'Égypte ancienne dans Mary Anne Murray, « Fruits, vegetables, pulses and condiments », in *Ancient Egyptian Materials and Technology*, éd. Paul T. Nicholson et Ian Shaw

À propos du poirier, fruitier dont la distribution sauvage se répartit en Europe et en Asie occidentale, il n'est pas inintéressant de noter que les Grecs sont les premiers à être connus pour avoir transmis – notamment au monde romain – sa méthode de culture et de reproduction par la greffe, comme c'est aussi le cas pour le cognassier ou le pommier.[7] Théophraste distingue ainsi le poirier cultivé (*apios*) qui produit naturellement un poirier « sauvage » (*achras*), de la même manière que la reproduction naturelle du pommier par semis produira une pomme d'une « variété abâtardie, de douce devenue acide ».[8] Pour ce qui concerne nos archives, il apparaît clairement qu'il s'agit de plants reproduits et adaptés par la greffe. C'est ainsi Apollônios lui-même qui indique à Zénon, en décembre 256, qu'il lui faudra réceptionner de « jeunes plants greffés de poiriers » depuis sa pépinière de Memphis pour les acclimater à Philadelphie ainsi que d'autres plants (*P.Cair.Zen*. II 59156) ;[9] ces poiriers sont-ils le résultat du cadeau constitué de 200 plants de poiriers fait l'été précédent par le contrôleur des comptes Apollônidès à Apollônios qui devait avoir eu l'occasion de les admirer dans l'un des vergers d'Apollônidès (*P.Mich*. I 24) ? On ne saurait le dire, mais peu après ces deux lettres, une troisième concerne une arrivée de plants dont Zénon doit organiser la plantation (*P.Cair. Zen*. III 59486) : des « pommiers de printemps » (*mēleas earinas*), 30 cognassiers (*kydōneas*) et 20 poiriers (*apious*).[10] Cette lettre, qui contient la quatrième et dernière mention de poiriers – dont on ne rencontre jamais les fruits – dans la documentation grecque, offre par ailleurs la seule mention explicite de cognassiers, sous une forme qui n'apparaît d'ailleurs pas avant la compilation des *Géoponiques.*[11] Fruitier originaire des pourtours méridionaux de la mer Caspienne,[12] il serait arrivé dans le monde grec avant l'époque classique avec un nom emprunté à une langue d'Asie mineure (*kodymalon*, κοδύμαλον), avant d'être réinterprété par les Grecs comme la « pomme de Kydônia », localité crétoise, *kydōnion mēlon*.[13] Le cognassier apparaît sous deux noms différents chez Théophraste puisque ce dernier, sans en dire beaucoup plus, précise dans la même section concernant les produits dégénérés de variétés horticoles repro-

(Cambridge : Cambridge University Press, 2000), 623–624 (figuiers), 624–625 (grenadiers) ; et dans Margaret Serpico et Raymond White, « Oil, faw and wax », ibid., 398–401 (oliviers).

[7] Daniel Zohary, Maria Hopf et Ehud Weiss, *Domestication of Plants in the Old World* (4th ed.; Oxford : Oxford University Press, 2012), 139–140 ; Michel Chauvet, *Encyclopédie des plantes alimentaires* (Paris : Belin, 2018), 620–623.

[8] Thphr., *HP* II, 2.5. Traduction par Suzanne Amigues, *Théophraste. Recherches sur les plantes*, 5 vol. (Paris : Les Belles Lettres, 1988–2006), vol. 1, 47.

[9] *P.Cair.Zen*. II 59156, l. 1–4 : μοσχεύματα ἀπίων καὶ φυτὰ ὅτι | πλεῖστα παρακόμισον ἐγ (ἐκ) Μέμφεως, ἔκ τε τοῦ ἡμετέρου κήπου | [καὶ ἐ]κ τῆς ἄκρας, καὶ τῶν γλυκυμήλων δὲ λαβὲ παρ' Ἑρμαφίλου, | [καὶ κατα]φύτευσον. Sur le sens de « jeune plant greffé » que prend *moscheuma* dans la documentation papyrologique, voir Hélène Cadell, « Le substantif μόσχευμα et les techniques de reproduction fruitière dans l'Égypte grecque », *Revue de philologie* 46 (1972) : 256–265.

[10] *P.Cair.Zen*. III 59486, l. 2 : μη]λέας τε ἐαρινὰς [ ] καὶ̣ κυδωνέας λ, ἀπίους κ.

[11] *Gp.* IV, 1 (Florentinus, IIIe s.) et X, 3 (Didymos, IV/Ve s.).

[12] Zohary et al., *Domestication*, 144–145.

[13] Chauvet, *Encyclopédie*, 587 et Amigues, *Théophraste. Recherches*, vol. 1, 120–121 n. 9.

duites par semis que « l'"œuf d'autruche" (*strouthion*) produit le cognassier (*kydōnia*) », les *strouthia*, correspondant, selon S. Amigues, à la variété améliorée par la culture produisant les coings les plus gros, les plus digestes et les moins astringents.[14] Si l'on se fie à cette typologie, il est dès lors surprenant que ce soient précisément les coings ordinaires qui fassent l'objet d'une mise en culture dans le parc d'Apollônios plutôt que la variété améliorée ; néanmoins la spécialiste faisait remarquer que le point de vue de l'arboriculteur adopté par Théophraste ne rejoint pas toujours celui du consommateur ; ainsi chez Dioscoride, il est précisé à propos des coings (*kydōnia*), dans une section sur les pommes (*mēlea*), qu' « il faut choisir les vrais, c'est-à-dire les petits, arrondis et parfumés ; ceux qu'on appelle *strouthia* sont, quoique gros, moins utiles ».[15] Cette dernière citation permet par ailleurs de rappeler que les coings ne sont jamais considérés que comme une variété de « pomme » en grec, c'est-à-dire du genre des fruits charnus à pépins ou noyaux. À ce titre, il n'est peut-être pas inutile de profiter de cette revue (partielle) des fruitiers de Zénon pour rappeler qu'un certain nombre de « pommiers » ne sont peut-être pas à prendre comme tels. Ainsi, dans la lettre déjà citée, *P.Cair. Zen*. II 59156, Apollônios dit envoyer à Zénon non seulement des poiriers mais aussi des *glykymēla* (l. 4), nom qu'on ne retrouve ensuite dans la documentation que beaucoup plus tard, dans un compte de livraison de produits incluant des plants de fruitiers sur lequel on reviendra (*P.Mich*. XIV 680). Chez Dioscoride, le phytonyme est donné comme un synonyme de *melimēlon* (μελίμηλον , litt. « pomme de miel ») dans la même section que les coings ; il en est dit que ces « pommes » ramollissent les selles, expulsent les parasites intestinaux et qu'elles sont mauvaises pour l'estomac.[16] C'est ainsi en s'appuyant sur ce lien de synonymie qu'on peut trouver dans les *Géoponiques* (X 20) une possible identification. Dans une section attribuée à Diophane de Bithynie (I^er^ s. av. J.-C.),[17] il est en effet indiqué que la greffe d'un pommier (*mēlon*) sur des cognassiers (*kydōnia*) produit de très belles pommes qu'on appelle chez les Athéniens des *melimēla*.[18] Était-ce le cas aussi pour ce qu'on appelait *glykymēlon* dans le Fayoum deux siècles plus tôt ? Ou peut-être ne s'agit-il à cette époque que de la variété cultivée de pommes, dites par ailleurs « douces » chez Théophraste (*HP* II, 2.5), par opposition aux pommes issues de semis. Mais Théophraste indique bien que pour la plupart des fruitiers domestiques connus, « la plupart des plantes sauvages sont dépourvues de nom et familières

[14] Ibid.

[15] Dsc., *MM* I, 115.3 (I, 108.9–10 W.).

[16] Ibid. (I, 108.15–17 W.).

[17] La qualité des observations apparaissant dans les sections agronomiques attribuées à Diophane est remarquable d'après Emanuele Lelli, *L'agricoltura antica. I* Geoponica *di Cassiano Basso* (Soveria Mannelli : Rubbettino, 2010), l.

[18] *Gp*. X, 20 : Ἐγκεντρίζεται μῆλον εἰς πᾶσαν ἀχράδα, καὶ εἰς κυδώνια, καὶ γίνεται ἐκ τῶν κυδωνίων μῆλα κάλλιστα, τὰ καλούμενα παρὰ Ἀθηναίοις μελίμηλα. Chez Plin., *NH* XV, 51, les *melimela* sont néanmoins une variété de pommes « nommées d'après leur goût de miel » et autrefois appelés *mustea* (mais en X, 38, les *mustea* sont une variété de coing) ; Jacques André (éd.), *Pline l'Ancien. Histoire naturelle, livre XV* (Paris : Les Belles Lettres, 2003), 92–93 n. 4 signale aussi ce changement de nom évoqué chez Varro, *Rust*., I, 59.1.

de peu de gens, les espèces domestiques plus souvent désignées par des noms et plus couramment connues ; je veux dire que l'on connaît par exemple la vigne, le figuier, le grenadier, le pommier (*mēlea*), le poirier, le laurier, le myrte, etc. » (*HP* I, 14.4).

On trouve ainsi dans les archives de Zénon quelques références à des pommes de manière non spécifiée, renvoyant alors vraisemblablement à *Malus domestica*. Ainsi, dans le cadre d'un séjour du ministre Apollônios et de sa suite à Berenikes Hormos, dans les environs de Memphis, où un bateau est déchargé avec toutes ses provisions au début de l'année 257 : vin, huile, viande, poisson, pain mais aussi miel, olives, noix, grenades et des « cagettes » et « cruche de pommes » (*P.Iand.Zen*. 53).[19] De même, deux lettres similaires expédiées en octobre de la même année, tantôt à Zénon (*P.Cair.Zen*. I 59099), tantôt à Apollônios (*P.Cair. Zen*. IV 59544), font état d'une livraison de fruits incluant des plateaux de grenades, pommes, dattes, olives grecques et figues. Si, en l'occurrence la disponibilité de pommes en octobre ne surprend pas, la disponibilité des mêmes fruits en février selon le document précédent est plus étonnante. Peut-être s'explique-t-elle par la plantation d'une variété à double récolte illustrée par le témoignage de *P.Cair.Zen*. I 59033, lettre dans laquelle des agents d'Apollônios visitent des vergers d'un personnage de haut rang et se font offrir une sélection de plants. Ils obtiennent différentes variétés de figuiers et de vignes, des grenadiers sans pépin ainsi que des « pommiers du printemps et des variétés bifères ».[20] Ce passage, qui a conduit à suggérer la culture de l'abricotier en Égypte à l'époque ptolémaïque, me paraît en fait concerner plutôt des fruitiers familiers du monde grec – les deux appellations se retrouvent chez Théophraste et semblent connues de ses lecteurs. S'il n'est pas impossible que le premier renvoie à une espèce de *Prunus* que l'on rapprocherait plutôt du *Prunus cerasifera* appelé myrobolan ou prunier-cerise,[21] le second se voit évoqué chez Théophraste, dans une section de son ouvrage sur *Les causes des phénomènes végétaux*, qui considère précisément les conditions dans lesquelles certaines espèces sont susceptibles de devenir bifères (I, 13.9) : « De fait, certaines variétés de pommiers et de poiriers qui passent pour bifères réussissent particulièrement bien dans ces lieux parce que la belle saison s'y prolonge beaucoup » ;[22] de même, on retrouve dans ses *Recherches* la même désignation que dans notre papyrus (I, 14.1.10) : « Produisent à la fois sur le bois d'un an et sur les jeunes pousses, par excellence les pommiers dans les variétés à deux récoltes ou tout arbre fruitier ».[23] Mis à part les figuiers, les pommiers et poiriers sont

[19] *P.Iand.Zen*. 53, l. 8 et 51 : κλούιον μήλων ; 34 : μήλων στάμνος.

[20] *P.Cair.Zen*. I 59033, l. 14 : μῆλα ἐαρινά, καὶ τῶν διφόρων.

[21] À propos de l'identification de ces « pommiers de printemps », on renvoie à Valérie Schram, « Des abricots dans le "paradis" d'Apollonios ? », *Autour d'Ergaleion*, 5 avril 2023, https://doi.org/10.58079/w8vx (dernier accès le 25 mars 2025).

[22] Thphr., *CP* I, 13.9 : τὰ δοκοῦντα δικαρπεῖν μηλεῶν τέ τινα γένη καὶ ἀπίων. Traduction de Suzanne Amigues (éd.), *Théophraste. Les causes des phénomènes végétaux*, vol. 1 (Paris : Les Belles Lettres, 2012), 34–35.

[23] Thphr., *HP*, I, 14.1.10 : μηλέαι τῶν διφόρων ἢ εἴ τι ἄλλο κάρπιμον. Traduction de S. Amigues, *Théophraste. Recherches*, vol. 1, 40.

les seules espèces de fruitiers à propos desquelles Théophraste mentionne explicitement ce caractère particulier, aussi, et malgré S. Amigues qui envisageait une adaptation de l'abricotier au climat égyptien le conduisant à produire deux récoltes,[24] il me paraît plus économique et vraisemblable qu'il soit dans notre document simplement question d'une variété de pommier. Quant aux pommiers ou pommes « de printemps » dont les mentions sont limitées au III^e^ s. av. J.-C., ils se voient associés aux poiriers, grenadiers, cognassiers et figuiers (*P.Cair.Zen*. III 59486 ; *P.Iand.Zen*. 54 ; *P.Petr*. III 53m), évoquant là encore les paysages de Panticapée décrits par Théophraste (*HP* IV, 5.3) où viennent figuiers, grenadiers, poiriers, pommiers et les variétés tardives de « pommiers du printemps » (*mēleai earinai*).[25]

Perspectives d'époque romaine : à la croisée des textes et de l'archéobotanique

De ces cognassiers, poiriers et pommiers du printemps nouvellement introduits, la documentation papyrologique ne donne guère de nouvelles dans le cours des siècles suivants. Concernant la poire (*Pyrus communis* L.), R. Germer[26] faisait remarquer que le climat égyptien, trop chaud, n'est guère adapté à sa culture, ce qui pourrait expliquer qu'on ne la trouve mentionnée dans la documentation papyrologique que dans ces quatre documents appartenant aux archives de Zénon[27] et que sa présence dans les vestiges archéobotaniques se limite à une trouvaille dans la nécropole gréco-romaine de Hawara.[28] Il faut néanmoins préciser que la culture de ce fruitier, au moins dans la bande de climat méditerranéen au nord de l'Égypte et dans laquelle se trouve Alexandrie, n'est pas impossible, puisque G. Schweinfurth faisait apparaître le poirier (ainsi que le pommier et le cognassier) parmi les fruitiers cultivés dans les anciens jardins arabes d'Égypte[29] – peut-être cette absence documentaire est-elle ainsi simplement due au défaut de conservation des sources dans la région humide du Delta.

La pomme est quant à elle un peu mieux représentée dans les vestiges archéobotaniques,

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[24] Voir Amigues, *Théophraste. Recherches*, vol. 1, 110 n. 1.

[25] Thphr., *HP* IV, 5.3 : Ἐν δὲ τῷ Πόντῳ περὶ Παντικάπαιον οὐδέτερον [...]. Συκαῖ δὲ πολλαὶ καὶ εὐμεγέθεις, καὶ ῥοιαὶ δὲ περισκεπαζόμεναι. Ἄπιοι δὲ δὴ καὶ μηλέαι πλεῖσται καὶ παντοδαπώταται καὶ χρησταί, αἱ δ' ἐαριναὶ πλὴν εἰ ἄρα ὄψιαι.

[26] Renate Germer, *Flora des pharaonischen Ägypte* (Mainz am Rhein : Philipp von Zabern, 1985), 62.

[27] *P.Mich*. I 24, *P.Cair.Zen*. II 59156 et III 59486 et *P.Iand.Zen.* 54.

[28] Percy E. Newberry, « The ancient botany: On the vegetable remains discovered in the cemetery of Hawara », in *Hawara, Biahmu, and Arsinoe*, éd. Flinders Petrie (London : Field & Tuer, 1889), 48. Il donnait l'indication suivante : « (3) a species of *Pyrus* (*P. domestica*, L.), also now found in Abyssinia », à propos de laquelle Germer (*Flora*, 62) précisait : « Seine Angabe, Birnen gäbe es jetzt in Abessinien, ist nicht richtig, denn weder Schweinfurth noch Engler nennen Birnen für dieses Gebiet ». Dans Christian De Vartavan, Arminee Arakelyan, Victoria Asensi Amorós, *Codex of ancient Egyptian plant remains / Codex des restes végétaux de l'Égypte ancienne* (2^nde^ éd. révisée et augmentée ; London : SAIS, 2010), 201 sont également indiquées des identifications possibles de bois de poirier sur plusieurs objets coptes conservés au Louvre, voir Marie-Hélène Rutschowscaya, *Musée du Louvre. Catalogue des bois de l'Égypte copte* (Paris : Réunion des musées nationaux, 1986), 15.

[29] Georg Schweinfurth, « Sur la flore des anciens jardins arabes d'Égypte », *Bulletin de l'institut égyptien* 8 (1888) : 304.

quoiqu'elle n'apparaisse pas sur les sites de la Vallée et soit curieusement absente à Hawara où une grande variété de fruits issus des fouilles de la nécropole gréco-romaine par F. Petrie avait pourtant été identifiée, incluant la présence de restes de poires que l'on vient d'évoquer, de cerises ou encore de pêches.[30] En revanche, la pomme est bien attestée sur les sites plus marginaux du désert Oriental et des oasis de Kharga et Dakhla, dans tous les cas à l'époque romaine. Ainsi, dans le port romain de Bérénice, l'identification de pépins montre qu'on appréciait le fruit, probablement importé depuis la Méditerranée d'après R. Cappers ;[31] dans le port de Myos-Hormos, c'est sous la même forme d'un pépin que la pomme a pu être identifiée, M. van der Veen précisant alors que si la culture en Égypte du pommier est possible, ces fruits feraient partie de ceux que l'on commercialisait sous une forme séchée, quoique plus souvent sans les pépins dans le cas de la pomme.[32] Du côté des oasis occidentales, à Douch, des rameaux de pommiers apparaissent dans la composition de bouquets funéraires, tandis qu'à Kellis ce sont des pommes entières, desséchées qui ont été retrouvées, suggérant dans les deux cas une introduction du fruitier dans les cultures locales.[33] Ici, comme dans le désert Oriental, tout le monde s'accorde pour y voir un produit de luxe : rare et coûteux, le fruit devait être réservé à des personnages haut placés, a fortiori dans le désert Oriental.[34] Les textes de la garnison romaine de Didymoi, située sur la route Coptos-Bérénice, révèlent quant à eux les conditions dans lesquelles ces fruits étaient susceptibles d'être transportés et échangés puisque trois ostraca datés du début du II^e^ s. les mentionnent dans la correspondance qu'ils contiennent (*O.Did*. 376, 377 et 385). Les pommes y sont, quand c'est précisé, envoyées par Philoklès – vivandier qui avait vraisemblablement un potager à Phoinikôn, *praesidium* nommé d'après une palmeraie toujours présente et situé à l'embranchement de la route reliant Coptos à Bérénice d'une part et à Myos Hormos d'autre part.[35] Faisant venir les produits de la Vallée, il les réexpédiait vers les fortins situés sur l'une et l'autre route. Les pommes, jusqu'à 20, sont toujours placées dans un *baukalion* – type de récipient en terre cuite rappelant la

[30] Newberry, *The ancient botany*, 46–50.

[31] René Cappers, *Roman Foodprints at Berenike* (Los Angeles : Cotsen Institute of Archaeology/University of California Press, 2006), 99.

[32] Marijke Van der Veen, *Consumption, Trade and Innovation: Exploring the Botanical Remains from the Roman and Islamic Ports at Quseir al-Qadim, Egypt* (Frankfurt am Main : Africa Magna Verlag, 2011), 155.

[33] Nathalie Baum et Hala Barakat, *Douch II, La végétation antique, une approche macrobotanique* (Le Caire : Ifao, 1992), 78 et Ursula Thanheiser, « Roman Agriculture and Gardening in Egypt as seen from Kellis », in *Dakhleh Oasis Project: Preliminary Reports on the 1994–1995 to 1998–1999 Field seasons*, éd. Colin A. Hope et Gillian E. Bowen (Oxford/Oakville, Conn. : Oxbow Books, 2002), 307.

[34] Marijke Van der Veen et al., « Vie romaine dans le désert Oriental d'Égypte : Alimentation, puissance impériale et géopolitique », in *Le désert oriental d'Égypte durant la période gréco-romaine : bilans archéologiques*, dir. Jean-Pierre Brun (Paris : Collège de France, 2018), §18 et 43.

[35] Adam Bülow-Jacobsen, in *Ostraca de Krokodilô. II, La correspondance privée et les réseaux personnels de Philoklès, Apollôs et Ischyras*, éd. Adam Bülow-Jacobsen, Jean-Luc Fournet, Bérangère Redon (Le Caire : Ifao, 2019), 33 et Hélène Cuvigny (éd.), *Didymoi, Une garnison romaine dans le désert Oriental d'Égypte, II- Les textes* (Le Caire : Ifao, 2012), 34–35.

cruche de *P.Iand.Zen*. 53 – rempli par ailleurs de *ptômata*, peut-être des dattes « tombées de l'arbre », visant à amortir les chocs d'après H. Cuvigny. Ces envois sont associés à des gourdes (*kolokynthia*), laitues (*thridax*), et autres choux (*krambē*) et oignons (*krommyon*) ; soit autant de produits frais suggérant que les pommes devaient être également envoyées fraîches, préservées de la chaleur par la forme pansue du *baukalion*.[36]

Dans la Vallée, malgré l'absence de vestiges archéobotaniques, les pommes semblent bien avoir continué de faire l'objet d'une culture après les expérimentations visibles dans les archives de Zénon puisqu'on en retrouve des mentions jusqu'au début de l'époque arabe – sans ce souci présent dans les archives de Zénon de distinguer des variétés. On retrouve ainsi, au II^e^ s. av. J.-C., dans une déclaration d'arbres fruitiers en vue de la taxe relative, mention d'une culture de rosier, figuiers, grenadiers dans un vignoble, ainsi que deux pommiers (*mēleai*) plantés sur une digue de l'Hérakléopolite (*P.Hels*. I 11).[37] Après le vide relatif que laisse la documentation au I^er^ s. av. J.-C., les pommiers ressurgissent à Théadelphie, dans le Fayoum du I^er^ s. (*P.Soter*. 2), agrémentant cette fois un vignoble planté en hautain sur des fruitiers (*akrodrya*). Le contrat de location qui en donne la description ne précise pas la qualité de ces arbres, si ce n'est au travers du détail de la rente qui prévoit le versement annuel de mille pommes.[38] Si le mot désignant la pomme est là presque entièrement restitué, la culture locale est vraisemblable puisque les pommes sont, à la même époque, relativement bien attestées sur le marché égyptien. Ainsi, un collecteur d'impôts précise qu'il n'a pas trouvé beaucoup de fruits à Memphis jusqu'à présent – la lettre est datée du 20 juin. Il a tout de même pu acheter des fèves et un nombre conséquent de pommes puisqu'il indique en envoyer 50 pour le neveu de son correspondant et 50 autres pour sa sœur et pour sa nièce (*P.Oxy.* II 298, l. 40-44). Du côté du Fayoum, c'est une autre lettre qui attire l'attention sur un problème intrinsèque lié aux fruits charnus : leur périssabilité. Dans une lettre adressée par un certain Sérénos à son père Apollinarios, en un mois de juillet d'une année inconnue, il est ainsi question des pommes que ce dernier avait demandé à son fils d'envoyer à un certain nombre de personnes. Sérénos explique avoir pu rassembler 63 pommes ; mais toutes ont pourri et il n'a pu les envoyer ! Il précise néanmoins en avoir acheté d'autres pour les envoyer selon les instructions de son père (*BGU* I 38). Au-delà de l'anecdote, ce texte a son importance parce qu'il montre bien qu'il s'agit là de fruits frais et non séchés ou marinés :[39] si dans le désert Oriental

[36] Sur le *baukalion*, récipient typiquement alexandrin, caractéristique de la vie des ermites dans le désert et susceptible de conserver de l'eau au frais, mais aussi des produits comme de la viande ou du raisin, voir Cuvigny, *Didymoi II*, 34-35 ; Jean-Luc Fournet, *Alexandrie, une communauté linguistique ? ou La question du grec alexandrin* (Le Caire : Ifao, 2009), 25–27.

[37] *P.Hels*. I. 11, l. 8–10 et 13–15 : ἐν τῶι | ὑπάρχοντί μοι | ἀμπελῶνι [...] ῥόδον καὶ συκαι (l. συκᾶς) καὶ ῥοαι (l. ῥοάς), | καὶ μηλεαι (l. μηλέας) β ἐπὶ τοῦ | χώματος.

[38] *P.Soter* 2, l. 28–29 : τῶν ἐν τῶι ἀμπελῶνι ἀκροδρύων πάντων ὤντων (ὄντων) | τοῦ μεμισθομένου (l. μεμισθομένου), ἐξ ὧν δότω καθ'(l. κατ') ἔτος μ[ήλω]ν χίλιον.

[39] Sur les enjeux et méthodes de préservation des fruits dans l'Antiquité, voir l'utile mise au point dans Cappers, *Roman Foodprints*, 143–151.

on utilise des sortes de cruches pour les transporter, dans la Vallée, ce sont plus souvent des paniers qui servent de support aux échanges. On envoie ici « un panier avec des oignons (?) et des pommes » (*P.Mil*. 1.2 74),[40] là c'est probablement un sac en fibres de palmier qui les contient dans une lettre concernant peut-être les préparatifs d'un mariage (*P.Palau Rib*. 28, 6).[41] On en envoie également en quantité assez large, ainsi dans une lettre provenant de l'Arsinoïte où l'on se plaint que son correspondant ne donne pas de nouvelles et où l'on souhaiterait savoir si la dernière lettre accompagnée d'un envoi de 50 pommes a bien été reçue (*SB* VI 9138).

Quant aux attestations de culture, elles restent sporadiques mais la liste de plants contenue dans le bon de livraison mentionné plus haut, *P.Mich*. XIV 680 (provenance inconnue) est d'un certain intérêt à cet égard pour l'époque romaine parce qu'elle contient toute une série de phytonymes montrant des variétés qu'on ne précise pas dans la correspondance usuelle. On y trouve ainsi, entre autres produits, mention des « deux lauriers (*daphnas*) et deux abricotiers (*armenia*) », des « noyaux de belles pêches (*persikōn*) d'hiver et de duracines (*dōrakinōn*) », et encore des plants de « pommes douces » (*phyta glykymēlōn*).[42] La distinction ici entre la commande de noyaux d'une part, pour les pêchers, et la commande de plants pour les « pommiers » d'autre part, n'est peut-être pas anecdotique et pourrait bien renvoyer à la distinction entre deux méthodes de reproduction : par semis pour les premiers, et par greffe pour les seconds. Si l'on peut en l'occurrence toujours considérer la possibilité qu'il s'agisse simplement de pommes cultivées (greffées donc) comme dans les archives de Zénon, la qualité des fruitiers associés dont on précise bien la variété me semble plutôt indiquer, pour l'époque romaine du moins, la culture plus sophistiquée que serait la variété hybride obtenue par la greffe d'un pommier sur un cognassier, suivant ainsi l'indication des *Géoponiques* (X, 20) et le classement proposé par Dioscoride qui voit dans ces fruits un type de coing – ce qui impliquerait évidemment que le cognassier soit toujours cultivé localement. Or, si on n'en garde pas d'autre trace à ma connaissance dans les textes de l'époque, le relevé des restes archéobotaniques égyptiens a permis de mettre en évidence la présence de coings à Karanis à l'époque

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[40] Il faut vraisemblablement voir une forme corrompue de *krommydion* (κρομμύδιον) dans *P.Mil*. I.2 74, l. 5 : σφυ|ρίδιον ἐν ᾧ [..]ρ..βυδια | καὶ μῆλα, le mot étant régulièrement écorché par les épistoliers et la forme rappelant vivement les κρομβύδια (l. κρομμύδια) de *O.Claud*. IV 892, 6.

[41] *P.Palau Rib*. 28, 6 : σεβαίνιον (l. σεβένιον) μήλων. Σεβένιον, emprunt de l'égyptien (cf. Jean-Luc Fournet, « Les emprunts du grec à l'égyptien », *Bulletin de la société de linguistique de Paris* 84 (1989) : 17), désigne les fibres du palmier et l'adjectif dérivé, σεβένινος, se rapporte le plus souvent dans la documentation aux cordes produites avec ces mêmes fibres, tandis que d'après la littérature hagiographique, le matériau servait aussi à confectionner des tuniques en toile peu coûteuses. Dans la mesure où ce ne sont pas les fibres que l'on utilise traditionnellement en vannerie mais plutôt les feuilles ou folioles que l'on tresse, il me semble plus probable que le terme désigne en l'occurrence par métonymie une sorte de sac, ou à tout le moins un contenant plus souple qu'un panier. On observe en effet dans la documentation textuelle des usages similaires entre les crins ou poils (*trichinos*, τρίχινος) qui servent aussi à la confection de sacs et les fibres de palmier.

[42] *P.Mich*. XIV 1680, l. 4-5 : π(αρ)ενεγκεῖν τὰς δύο δάφνας καὶ τὰ δύο | ἀρμένια ; l. 8-9 : π(αρ)ενεγκεῖν ὀστᾶ περσεικῶν(l. περσικῶν) καλῶν | χειμερινῶν καὶ δωρακείνων (l. δωρακίνων) ; l. 13 : π(αρ)ενεγκεῖν μοι φυτὰ γλυκυμήλων.

romaine.[43] Parmi les vestiges de fruits retrouvés dans les maisons (III^e^–V^e^ s.) apparaissent ainsi, aux côtés des dattes, figues et olives, différentes variétés de fruits à coque – noisettes (*Corylus avellana*), pistaches (*Pistacia vera*), noix (*Juglans regia*), pignons de pin (*Pinus pinea*) – mais aussi des pêches (*Amygdalus persica*) et des coings (*Pyrus cydonia*), ce qui confirme la présence du fruit, sinon du fruitier, dans le Fayoum, même si la continuité depuis l'époque de Zénon ne peut être établie.

Dès lors et en l'absence du terme connu pour désigner plus communément le coing, on peut s'interroger sur la qualité de ces « pommes », *mēla* (μῆλα), qui apparaissent dans la documentation. Le commentateur d'un texte indiquait ainsi, à propos de *P.Pal.Rib*. 28 : « The fruits of course are likely to have been quinces or pomegranates ».[44] S'il faut évidemment considérer toute l'ambiguïté du terme *mēlon* dans son acception générique – susceptible de désigner tout fruit charnu et plus particulièrement les pommes, coings, grenades et autres pêches et abricots –,[45] le terme ne me paraît pas si ambigu dans la documentation papyrologique. D'abord les pêches, abricots et cédrats sont trop précieux pour qu'on ne précise pas leur qualité par un adjectif (souvent substantivé) ; les grenades sont quant à elles communes, assez fréquemment mentionnées et appelées selon leur nom courant *rhoa* (ῥόα) (ou rarement *rhoia*, ῥοιά) – avec le dérivé adjectival *rhoïnos* (ῥόϊνος), et, à partir de l'époque romaine, le diminutif *rhoïdion* (ῥοΐδιον). Du reste, quand on va au marché chercher des fruits, on parle alors, comme dans la lettre déjà évoquée *P.Oxy* II 298, d'*opôra*[46] et l'on en revient avec des *mēla* : c'est là le terme *opôra* qui prend cette valeur générique. Ainsi, dans les manuels de conversation bilingues (grec et latin) des *colloquia pseudodositheana*, un passage évoque une mise en situation similaire puisqu'il est question de se rendre au marché (gr. *lachanopōleion* / λαχανοπωλεῖον) pour acheter légumes (*lachana* / λάχανα) et fruits (gr. *opōran* / ὀπώραν et lat. *poma*), dont on donne ensuite une énumération précise : mûres (gr. *sykamina* / συκάμινα et lat. *mora*), figues (gr. *syka* / σῦκα et lat. *ficus*), pêches (gr. *dōrakina* / δωράκινα et lat. *persos*), poires (gr. *apious* / ἀπίους et lat. *piras*) et azeroles (gr. *trikokkia* / τρικόκκια et lat. *tuberes*).[47] Reste néanmoins la possibilité que le mot *melon* soit utilisé pour désigner de manière indifférenciée pommes et coings, mais la précision que comporte intrinsèquement le composé

[43] Harley Harris Bartlett, « Fruits and Other Plants », in *Karanis: the temples, coin hoards, botanical and zoological reports. Seasons 1924–31*, éd. Arthur E.R. Boak (Ann Arbor : University of Michigan Press, 1933), 87–88 (apparemment omis dans le *Codex*).

[44] James G. Keenan, « Review: *Papiri documentari greci del Fondo Palau-Ribes (P.Palau.Rib). Estudis de Papirologia i Filologia Bíblica 4* by Sergio Daris », *The Bulletin of the American Society of Papyrologists* 32 (1995) : 90.

[45] Voir Pagnoux, « Fruitiers connus et cultivés en Grèce », §101–102.

[46] *P.Oxy* II 298, l. 39 : ὑπώρα en l'occurrence, comme parfois dans les papyrus, avec le même sens. Sur le sens de *opôra*, voir aussi Pagnoux, « Fruitiers connus et cultivés en Grèce », §103.

[47] *Colloquia Monacensia-Einsidlensi*, 8c, in *The Colloquia of the Hermeneumata Pseudodositheana. Volume 1, Colloquia Monacensia-Einsidlensia, Leidense-Stephani, and Stephani*, éd. Eleanor Dickey (Cambridge/New York : Cambridge University Press, 2012), 122, et 175 pour les notes.

glykymēlon dans *P.Mich*. XIV 1680 va à l'encontre, me semble-t-il, de cette hypothèse, ainsi que la différence des modes de conservation et de consommation impliqués pour les pommes et les coings.[48]

En somme, la solution économique serait de suivre la convergence qui se dégage dans le parallèle des attestations textuelles et archéologiques et de voir dans les *mēla* de simples pommes attestées par ailleurs par l'archéologie – il ne paraît pas trop aventureux de déduire de la culture du pommier dans les oasis occidentales son égale présence au moins dans le Fayoum – et dans les *glykymēla*, une variété raffinée de coings, peut-être issue d'une greffe avec un pommier.

2. Un fruitier oublié : le sébestier (*Cordia myxa* L. et *Cordia sinensis* Lam.)

*Les friandises des solitaires (*myxaria*)*

Si la disponibilité des pommes semble être le résultat des efforts liés à leur introduction à l'époque ptolémaïque, l'époque romaine connaît évidemment aussi son lot d'introduction de nouveaux fruits et fruitiers, dont pêches et abricots. Elle laisse néanmoins entrevoir également la résurgence de fruitiers exploités depuis des temps anciens en Égypte sans que leur nom n'apparaisse sous les Lagides. Parmi ces derniers, on peut compter sur le sébestier que certains ont reconnu derrière le « prunier » d'Égypte (*kokkymēlea* / κοκκυμηλέα) de Théophraste qui croît en Thébaïde (*HP* IV 2, 10, cf. Pline XIII 64), mais qui, d'après S. Amigues, désignerait plus justement le *Balanites aegyptiaca*.[49] Dans les sources papyrologiques, c'est d'abord le fruit du sébestier que l'on voit apparaître sous le nom de *myxarion* (μυξάριον) – dérivé de μύξα qui désignerait à la fois la « morve » et le fruit du sébestier en raison du caractère mucilagineux de sa pulpe –[50] dans le contexte du désert Oriental. Ainsi, dans le fortin de Krokodilô, sur

[48] Voir notamment Plin., *HN* XV, 38 qui relève une seule variété de coing qui se consomme cru ; en XV, 60, il indique que le coing est traditionnellement cuit ou plongé au moins dans du miel. Chauvet, *Encyclopédie*, 588 fait néanmoins remarquer l'usage commun en Afghanistan de consommer les coings crus, comme des poires.

[49] L'identification avec le sébestier, proposée par Arthur Hort (éd.), *Theophrastus. Enquiry into Plants* (London : Heinemann, 1916), 301 a été retenue dans le dictionnaire du LSJ, chez Jacques André, *Les noms des plantes dans la Rome antique* (Paris : Les Belles Lettres, 1985 [tirage 2010]), s.v. *prunus*, 3 et généralement reprise sans discussion – entre autres, chez Murray, « Fruits, vegetables », 626 (avec sources complémentaires). Cette identification est écartée par Amigues, *Théophraste. Recherches*, vol. 2, 211–212 n. 12 au profit du *Balanites* (*HP* IV, 2.10), sans qu'elle explique pourquoi elle ne retient pas le sébestier. Pour aller néanmoins dans le même sens qu'elle, je remarque notamment que la période de floraison donnée par Théophraste (octobre) ne correspond guère à celle du sébestier qui fleurit en mai et produit déjà ses fruits en octobre, à ce propos, voir Alire Raffeneau-Delile, « Flore d'Égypte. Explication des planches » in *Description de l'Égypte, Histoire Naturelle*, vol. 2 (Paris : Imprimerie impériale, 1812), 192 ou, plus récemment, Mordechai Kislev, « Archaeobotanical evidence of birdliming at Ashkelon », in *Ashkelon 1. Introduction and overview (1985–2006)*, éd. Lawrence E. Stager, J. David Schloen et Daniel M. Master (Winona Lake, Ind. : Eisenbrauns, 2008), 134.

[50] Voir Pierre Chantraine *Dictionnaire étymologique de la langue grecque : histoire des mots*, achevé par Jean Taillardat, Olivier Masson et Jean-Louis Perpillou, avec en supplément les Chroniques d'étymologie grecque (1–10) (Paris : Klincksieck, 2009), s.v. μύσσομαι.

la route reliant Coptos à Myos Hormos, la correspondance d'Ischyras évoque des envois de sébestes et de dattes vers Persou, un fortin voisin (*O.Krok*. II 319 et 320). Dans une troisième lettre (*O.Krok* 332), adressée cette fois à Ischyras, il est également question de sébestes mais sous une forme que l'éditeur identifie comme étant le nom féminin *myxa* (μύξα), laquelle reste très rare.[51] Le texte se trouvant être très fragmentaire – la partie gauche est perdue et le mot μυξα est situé à l'extrémité droite –, il paraît assez vraisemblable que cette forme soit en fait incomplète et qu'il faille restituer (au moins partiellement, la syntaxe étant peu claire) *myxa[ri-* (μυξα|[ρι-), comme dans les deux autres lettres. C'est en effet de ce nom, semble-t-il, que les sébestes étaient couramment désignées, si bien qu'Agatharchide déjà (*ap*. Diodore, I 34, 9–10) expliquait : « en Égypte, les baies (*bata*) appelées *myxaria* se récoltent après que le fleuve s'est retiré et on les mange en dessert (*tragēmatos*) en raison de leur douceur »,[52] tandis que quelques siècles plus tard, ce sont les Pères du désert qui les consomment encore sous ce nom. Ainsi d'un « festin de roi » évoqué par Jean Cassien : « Sérénus, ensuite, nous servit du sel grillé avec trois olives par tête. Puis, il nous présenta encore une corbeille avec des pois chiches torréfiés : c'est là ce que les solitaires appellent des friandises (*trogalia*). Nous prîmes également deux sébestes (*myxaria*) et chacun une figue. Passer ce nombre serait péché, dans ce désert » ;[53] dans un apophtegme, c'est avec des sébestes sèches (*myxaria xēra*) ajoutées à la traditionnelle bouillie de gruau (*athēra*) qu'on tente de rétablir un vieillard malade.[54] C'est

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[51] Adam Bülow-Jacobsen dans *O.Krok*. 332, l. 11n. Dans les sources hors Égypte, on voit quelques occurrences de ce sens du mot chez les médecins grecs, ainsi Dsc., *Eup.* II, 69.2 (III, 280.1 W.) : σύκοις ἢ μύξαις ; Orib., *Ecl.* 35.1.5 (éd. Raeder, CMG 6.2.2, 198, 14) : ῥοός, ἐλίκων ἀμπέλου, μυξῶν ; Aët., V, 122.8 (éd. Olivieri, CMG 8.2, 99, 15) : μυξῶν τῷ λινοσπέρμῳ συγκαθηψημένων ; ou encore chez Paul.Aeg. VII, 3.12.132, apparemment seul à présenter des éléments descriptifs (éd. Heiberg, CMG 9.2, 244, 1-2) : Μύξα δένδρου καρπός ἐστι μικρότερος μὲν τῶν κοκκυμήλων, δυνάμει δὲ παραπλήσιος. D'après Paul, un autre nom de la sébeste semble avoir été *mysklon/mysklion* (μύσκλον/μυσκλίον) : il reprend ainsi le texte d'Orib., *Syn.* VI, 43 (éd. Raeder, CMG 6.3, 208, 6 et 11) : δαμασκηνοῦ καὶ μυσκλίου τὰ ὀστέα, en précisant le sens du mot en II, 53.1.8 (CMG 9.1, 121, 32) : μυσκλίου (τοῦτο δέ ἐστιν ἡ μύξα).

[52] D.S. I, 34 : τὰ δὲ βάτα καλούμενα μυξάρια συνάγεται μὲν κατὰ τὴν ἀποχώρησιν τοῦ ποταμοῦ, διὰ δὲ τὴν γλυκύτητα τῆς φύσεως αὐτῶν ἐν τραγήματος μέρει καταναλίσκεται. Traduction par Pierre Bertrac et Yvonne Vernière (éd.), *Diodore de Sicile. Bibliothèque historique* I, 34 (Paris : Les Belles Lettres, 1993 [tirage 2021]), 77–78 et n. 1 ; à noter que les éditeurs, restituant le mot μυξάρια là où la leçon avait été retirée de l'édition de Charles Henry Oldfather (éd.), *Diodorus Siculus. Library of History*, vol. 1 (Cambridge, MA : Harvard University Press, 1960) suivant celle de Ludwig August Dindorf (éd.), *Diodori Bibliotheca Historica*, vol. 1 (Leipzig : Teubner, 1888), s'interrogeaient sur la signification du mot dans lequel ils voyaient un hapax susceptible de désigner « une variété ou une appellation locale de la mûre ». Il est vrai que la classification du fruit parmi les βάτα – unique attestation littéraire de la forme neutre de ἡ βάτος, qui désignerait alors le fruit de la ronce – est curieuse et méritera d'être réexaminée à la lumière des rares mentions de βάτα/βάτος dans les papyrus, comme par exemple dans la liste de denrées alimentaires de *P.Köln*. XIII 526, II 5 où des βάτα sont associées à des figues (datée du II^{e} s. av. J.-C.). Ces classifications anciennes effectuées par analogie – comme le sycomore, mentionné juste avant, qui rentre dans la catégorie des mûriers – ne sont pas toujours faciles à appréhender mais la période de fructification et le mode de consommation correspondent bien au sébestier qui, du reste, s'inscrit de manière beaucoup plus heureuse dans cette évocation des plantes égyptiennes que la ronce.

[53] Jean Cassien, *Conférences* VIII, 1. Traduction par Eugène Pichery (éd.), *Jean Cassien. Conférences*, vol. 2, *VIII–XVII* (Paris : Éditions du Cerf [Sources Chrétiennes 54], 1958), 10, 14.

[54] *Apophthegmata patrum (collectio systematica)* IV, 78. 3, in Jean-Claude Guy (éd.), *Les apophtegmes des Pères.*

ainsi probablement aussi sous cette forme sèche qu'on les transporte dans le désert Oriental et qu'on les consomme, selon le commentaire l'éditeur.[55]

D'où provenaient donc ces sébestes ? Les sources archéobotaniques offrent deux pistes différentes, selon l'espèce considérée, et c'est encore dans le désert Oriental qu'elles se révèlent d'autant plus intéressantes qu'elles peuvent être mise en résonance avec les textes qui mentionnent ces fruits.

Sébestiers de la Vallée et sébestiers du désert

Quand il s'agit de sébestes, les spécialistes évoquent le plus souvent le sébestier dit domestique, *Cordia myxa* L., espèce qui aurait été introduite en Égypte en des temps anciens et provenant d'Iran et du sous-continent indien (Figs. 1–2).[56] Les attestations archéobotaniques en sont assez peu nombreuse avant l'époque ptolémaïque d'après le *Codex*,[57] mais comprennent une dizaine d'identifications pour l'époque gréco-romaine, tant dans la Vallée ou le Fayoum, que dans les oasis occidentales, le désert Oriental, jusqu'aux monastères de Haute Égypte. Identifiant ainsi un noyau dans le premier monastère de Phoibammon, V. Täckholm concluait son analyse sur ces mots : « Our stone shows that the monks of the Monastery cultivated the tree and were familiar with its use ».[58] Et de fait, dans la Vallée, sous le nom – propre au grec d'Égypte – de *myxea* (μυξέα), on le voit cultivé dans les jardins de l'Oxyrhynchite (*P.Ross.Georg*. II 19) ou à l'entrée du Fayoum (*P.Petaus* 43, 11) au II^e^ s., dans l'Hermopolite (*P.Herm.Boul*. 31A) au III^e^ s., et encore plus au sud, à Aphrodité, au VI^e^ s. (*P.Hamb*. I 68, 35).[59] Mentionné dans des registres fiscaux ou, le plus souvent, dans des contrats de location de terrain, il appartient au paysage des domaines mêlant ressources boisées et productions fruitières et maraîchères. Ainsi dans les clauses du contrat de *P.Ross.Georg.* II 19, le loyer en nature prévoit notamment la livraison annuelle de 300 grappes de raisin choisies, la récolte d'un palmier dattier, 1 artabe de dattes sèches, 20 gourdes, 40 concombres, 20 grenades (*rhoas*), des olives noires (*elaias*), 100 artabes de pêches (*persikōn*) d'une qualité perdue en lacune, 200 figues (*sykōn*), et 8 chénices de sébestes sèches

Collection systématique. 1, Chapitres I-IX (Paris : Éditions du Cerf [Sources Chrétiennes 387], 1993), 225. Sur l'*athera*, mets traditionnel égyptien, utilisé également pour soigner les malades, voir Françoise Perpillou-Thomas, « Une bouillie de céréales : l'*Athèra* », *Aegyptus* 72 (1992) : 103–112.

[55] Fournet dans *O.Krok*. II 319, l. 7n.

[56] Cappers, *Roman Foodprints*, 83 ; Van der Veen, *Consumption*, 151.

[57] Il n'y a guère que deux attestations recensées, provenant de la région thébaine et datées du Moyen Empire. Murray, « Fruits, vegetables », 626, évoque également des vestiges datant de la 3^e^ dynastie, à Saqqara.

[58] Vivi Täckholm, « Botanical identification of the plants found at the monastery of Phoebammon », in *Le monastère de Phoebammon dans la Thébaïde, t. III : identifications botaniques, zoologiques et chimiques*, éd. Charles Bachatly (Le Caire : Société d'archéologie copte, 1961), 30.

[59] Michael Schnebel, *Die Landwirtschaft im hellenistischen Ägypten* (München : C.H. Beck'sche Verlagsbuchhandlung, 1925), 314–315, rectifiait déjà correctement l'identification du sébestier qui, dans la littérature antérieure, avait pu être confondu avec le perséa (*Mimusops laurifolia* [Forssk.] Friis).

(*myxeōn xērōn*).[60] C'est là la seule occurrence que je vois du fruit avec cette graphie qui étonne : on l'a dit, ailleurs, *myxea* (μυξέα) désigne l'arbre selon le sens du suffixe *-ea* (*-έα*) dont sont régulièrement pourvus les noms grecs d'arbre.[61] On attendrait pour le fruit, soit *myxōn* (μυξῶν) comme le propose l'édition, soit *myxariōn* (μυξαρίων), mais l'utilisation du nom d'arbre pour le fruit et vice-versa n'est pas si rare dans les usages et l'on retrouve ainsi dans un relevé de terrain de l'Hermopolite le nom *myxai* (μύξαι) pris entre deux autres occurrences de *myxeai* (μυξέαι) pour désigner des arbres sur pied (*P.Herm.Boul*. 31A, 18). Là, c'est en effet un collectif descendu faire une inspection de propriétés en état d'abandon au début du III^e^ s. qui relève ainsi sur le *klèros* de Callimaque (l. 14–24) : « contre la machine hydraulique se presse un sébestier (*myxea*) florissant, et 20 sycomores forment un groupe et d'autres petits sébestiers (*myxai*) au nombre de 7 sont dispersés dans le vignoble » (l. 17–19),[62] tandis qu'apparaît plus loin, près de la machine hydraulique du nord, un autre « sébestier florissant » (l. 21) ; sur le *klèros* de Philiskos (l. 24–37), de même, au milieu de perséas, sycomores, palmiers et oliviers en partie abattus se dresse encore « un sébestier florissant » (l. 37), seule espèce d'arbre de l'ensemble dont le bois ne devait guère intéresser pour ne pas avoir été abîmé.[63] Visiblement c'est un arbre qu'on cultive au II^e^ s. puisque le registre fiscal conservé dans *P.Petaus* 43 évoque en passant « deux nouveaux sébestiers » (*myxeai neai*) sur le territoire de Ptolemais Hormou (El-Lahun) – à moins qu'ils n'aient poussé spontanément ?[64] Enfin, plus tardivement, le contrat de location d'un terrain, propriété d'un monastère et situé dans la pleine sud d'Aphrodité, fait état, en les distinguant, de la présence de peuplements d'acacias, d'arbres (non spécifiés), de dattiers, d'un verger, d'oliveraies, et encore d'une vigne nouvellement plantée (*P.Hamb*. I 68, l. 4–7).[65] Dans le loyer en nature, apparaît en revanche la mention de « la récolte des oliviers, des sébestiers (l. 35 : *myxeas*) et du verger (*pōmariou*) »,[66] ce qui suggère que les sébestiers (vraisemblablement un singulier collectif pour cette forme au génitif) ne sont pas considérés comme appartenant au verger et devaient faire partie de « tous les arbres, fruitiers et non fruitiers » (l. 7 : *phytois enkarpois te kai akarpois*) cultivés en complément pour agrémenter la propriété sans avoir la valeur des fruitiers introduits pour des productions fruitières de luxe.

Remarqué par G. Schweinfurth dans les jardins traditionnels arabes d'Égypte à la fin du

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[60] *P.Ross.Georg*. II 19, l. 15–16 : ῥόας εἴκοσι καὶ ἐλαίας μελαίνης ἀρτάβης τετάρτου χι|νείκων (χοι|νίκων) δύο, περσικῶν [---] ἀ[ρτα]βῶν ἑκατὸν, σύκων διακοσίων, μυξεῶν ξηρῶν χοινικὰς ὀκτὼ.

[61] Pierre Chantraine, *La formation des noms en grec ancien* (Paris : Champion, 1933 [tirage 1979]), 92, §70.

[62] *P.Herm.Boul*. 31A, 18, l. 17–19 : ἐπέ[κει]το δὲ τῷ ὀργάνῳ μυξέα ζωφυτοῦσα | καὶ συκαμειναὶ (l. συκαμιναὶ) κ συ[ν]ῃ[ρη]μέν[αι κ]αὶ ἐσκορπισμέναι ἐν τῷ χωρίῳ β[ρ]αχῖαι (l. β[ρ]αχεῖαι) μυξαὶ (l. μυξέαι) | ἀριθμῷ ζ.

[63] Le *Codex* indique une attestation possible de ce bois dans Rutschowscaya, *Catalogue des bois,* 39 n. 44 et 15 : il s'agit d'un étui à kohol provenant d'Edou, d'époque byzantine.

[64] *P.Petaus* 43, 11 : μ]υξέα (l. μυξέαι) νέαι β.

[65] D'après la réédition du texte préparée par Florence Lemaire, *Les baux ruraux à Aphrodité au VI^e^ siècle de notre ère : les contrats de location et les reçus de loyer des archives de Dioscore* (travail inédit).

[66] *P.Hamb*. I 68, 34–35 : ὁ δὲ καρπὸς | τῶν ἐλαίων καὶ τῆς μυξαίας (l. μυξέας) καὶ το(ῦ) {καρποῦ τοῦ} πωμαρίο(υ).

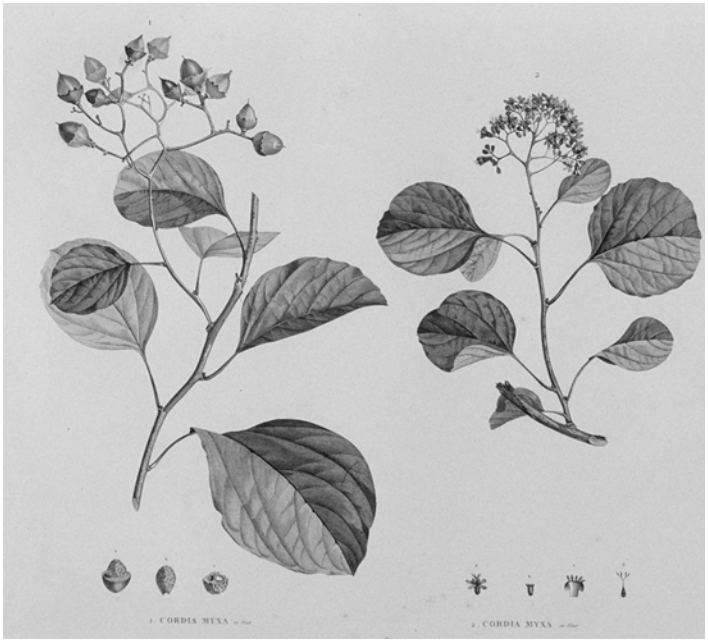

Fig. 1. *Cordia myxa* en fruit (1) et en fleur (2), *Description de l'Égypte*, *Planches : Histoire Naturelle*, t. II bis, Paris 1813, pl. 19. Source : Gallica.bnf.fr/ Bibliothèque nationale de France.

Fig. 2. Fruits de *Cordia myxa* L. sur l'arbre. © Joegoauk Goa (licence CC BY-SA 2.0).

XIX^e^ s., ce dernier expliquait ainsi : « Deux arbres originaires de l'Inde et introduits au moyen-âge par les Arabes sont en même temps ornementaux et utiles par les fruits qu'ils produisent. Le sébestenier [*Cordia myxa* L., *moukheyt*] et le cassier donnent par leur port caractéristique un cachet particulier aux anciens jardins. Le premier, dont les drupes mucilagineuses sont d'une saveur douceâtre et en même temps astringentes, fait partie de l'ancienne matière médicale des Arabes. Aujourd'hui, le seul emploi qu'on en fait en Égypte est la glu ».[67] Tandis que cette association avec le cassier (*Cassia fistula* L.) rappelle les *Observations* par Pierre Belon du Mans, au XVI^e^ s., des jardins de Boulaq où « les Cassiers, Sebestiers, Palmiers & Sycomores croissent bien forts haut » et de Matarieh où les sébestiers se mêlent aux sycomores,[68] c'est chez Prosper Alpin, à la même époque que la description botanique est la plus précise, puisqu'il distingue, à juste titre, deux espèces de sébestiers : «L'un est sauvage et ressemble au prunier ; l'autre, cultivé, diffère du précédent par ses feuilles plus larges et épaisses. L'un et l'autre portent de petites fleurs blanches proches de celles du géranium et d'où sortent des fruits semblables à de petites prunes rondes à noyau tricosté. L'arbre sauvage porte des fruits plus petits, mûrissant plus tard et moins parfaitement que ceux de l'arbre cultivé qui sont, eux, plus gros et meilleurs. On voit des fruits sur l'arbre toute l'année. Les sébestiers fleurissent au printemps et mûrissent leurs fruits à l'automne. Avec la pulpe des fruits de sébestier, les Égyptiens font une excellente pâte visqueuse (*viscum*) en broyant et en lavant les fruits mûrs [...]. Ils mettent ensuite une certaine quantité de ces fruits dans un récipient et font bouillir un peu, jusqu'à ce que la partie aqueuse disparaisse. Ils utilisent cette pâte comme emplâtre pour toutes les tumeurs cirrheuses [...]. Contre la toux, beaucoup prennent, pendant plusieurs jours, des bols préparés avec ce produit mélangé à du sucre et à la racine de réglisse [...]. On en fait une décoction qui sert aussi, habituellement, pour beaucoup de fièvres surtout lorsque la poitrine est atteinte ».[69]

Si cette description des usages médicinaux entre en résonance avec l'utilisation du fruit en bouillie pour soigner un vieillard souffrant de maux de ventre dans les *Apophtegmes*, comme vu plus haut, on voudrait terminer cet aperçu en revenant sur les espèces à considérer pour établir un lien entre les mots employés dans la documentation textuelle et les vestiges archéobotaniques. Prosper Alpin attire en effet notre attention sur une espèce laissée quelque peu de côté jusque-là, aujourd'hui identifiée sous le nom de *Cordia sinensis* Lam. Quoique indigène – alors que *Cordia myxa* ne se trouve qu'à l'état cultivé en Égypte – cette espèce n'avait laissé que peu de traces archéologiques. Le *Codex* ne recense guère en effet que trois entrées sous ce nom, d'époque respectivement prédynastique, de la 3^e^ dynastie et de la 18^e^, sous la forme de graines et de fruits, quand les attestations archéobotaniques de *Cordia myxa* sont relative-

[67] Schweinfurth, *Flore*, 308.

[68] Serge Sauneron (éd.), *Voyage en Égypte de Pierre Belon du Mans, 1547* (Le Caire : Ifao, 1970), 107a et 112a.

[69] Raymond de Fenoyl (éd.), *Plantes d'Egypte par Prosper Alpin : 1581–1584* (Le Caire : Ifao 1980 [2^e^ éd. : 2007]), 29–31.

ment bien représentées, notamment pour l'époque gréco-romaine. Les spécialistes expliquent ainsi que la distribution naturelle de l'espèce, répandue en Afrique, n'atteint jamais que le sud de l'Égypte, et plus particulièrement le Gebel Elba et l'oasis de Kharga, l'espèce ne se présentant ailleurs que sous une forme cultivée en jardins.[70] Si cette espèce avait été quelque peu oubliée, la découverte de ses fruits à Bérénice et Shenshef,[71] datés d'une part de l'époque impériale et d'autre part des IV^e^–VI^e^ s., a conduit R. Cappers à formuler l'hypothèse qu'ils aient pu être prélevés dans le Gebel Elba – à moins, ajoute-t-il qu'ils ne proviennent par la voie du commerce maritime d'Érythrée ou d'Éthiopie. Les auteurs d'une synthèse plus récente sur l'alimentation dans le désert Oriental indiquent que le recours à des productions fruitières locales s'inscrivent peut-être dans un changement au début de l'époque byzantine ayant trait à l'abandon des fortins sur la route de Bérénice et une réduction dans la gamme des produits disponibles, conduisant à « une plus grande dépendance alimentaire à l'égard des productions locales de la zone désertique, comme les fruits du sébestier sauvage, du balanite (datte du désert), du jujubier épine du Christ, du palmier doum et du moringa (noix de ben) » et à « une intensification des contacts entre les occupants romains du port et la population nomade de la région, ou même qu'une partie de celle-ci résidait dans le port ou ses alentours ».[72] De la même manière, l'identification de l'espèce sauvage n'est pas écartée dans le sud de l'oasis de Kharga, que ce soit à Ayn Manawir ou à Douch, aux époques perse et romaine, où la taille des noyaux mis au jour est variable et peut ainsi suggérer une double culture des espèces sauvage et domestique du sébestier.[73] Il est remarquable en tout cas que le sébestier apparaît parmi les fruitiers les mieux représentés à Ayn Manawir à l'époque perse,[74] tandis qu'à Douch, à l'époque romaine, des tiges présentant des infrutescences de *Cordia myxa* montrent aussi bien la présence locale de l'espèce cultivée. Dans l'oasis de Dakhla en revanche M. van der Veen s'étonnait en 2011 de l'absence de sébestes à Kellis.[75] Si une publication plus récente concer-

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[70] Loutfy Boulos, *Flora of Egypt, volume two* (Cairo : Al Hadara Pub. 2000), 270 et Cappers, *Roman Foodprints*, 83–84 qui précise que l'espèce *Cordia sinensis* Lam. a fait l'objet d'une redéfinition en deux espèces distinctes en 1990 : *Cordia sinensis* Lam. et *Cordia nevillii* Alston, cette dernière n'atteignant pas spontanément l'Égypte, elle reste à considérer si les fruits ont été importés (les deux espèces ne se distinguant pas par l'observation seule des fruits).

[71] Site situé à une vingtaine de kilomètres au sud-ouest de Bérénice, dont l'occupation est datée des V^e^ et VI^e^ s. mais la fonction non assurée, cf. Van der Veen et al., « Vie romaine dans le désert Oriental », annexe 2.

[72] Van der Veen et al., « Vie romaine dans le désert Oriental », §30.

[73] Claire Newton, Thierry Gonon et Michel Wuttmann, « Un jardin d'oasis d'époque romaine à 'Ayn-Manâwir (Kharga, Égypte) », *BIFAO* 105 (2005) : 172 et Claire Newton et al., « L'agriculture oasienne à l'époque perse dans le sud de l'oasis de Kharga (Égypte, V^e^-IV^e^ s. AEC) », *Revue d'ethnoécologie* 4 (2013) : §23–24 et Baum et Barakat, *Douch II*, 39–40.

[74] Newton et al., « L'agriculture oasienne », §24 et 47 : « L'importance quantitative particulière du sébestier est à souligner au regard de ce que l'on connaît plus tard de son commerce à longue distance et du peu d'attestations égyptiennes pré-romaines. Ce fruit à saveur acidulée a également pu être exporté ».

[75] Van der Veen, *Consumption*, 154 (pour l'analyse des vestiges archéobotaniques de Kellis, voir Thanheiser « Roman Agriculture », 299–310, où le genre *Cordia* n'apparaît pas).

nant la proche Amheida/Trimithis évoque une identification de *Cordia* sp. dans un rapport préliminaire plus ancien, elle n'en donne pas confirmation.[76] Il est par ailleurs notable que le sébestier n'est pas représenté dans la documentation textuelle de Kellis et plus particulièrement dans le long compte agricole de Kellis (*P.Kell*. IV), au IV^e^ s. qui fait pourtant apparaître la consommation d'autres fruits égyptiens comme les jujubes (*Ziziphus spina-christi* d'après les analyses archéobotaniques associées) et même leur exportation vers la vallée du Nil. En somme, en l'état des sources, le fruitier ne semble guère avoir été présent dans le paysage de Dakhla.

« L'arbre à gluaux » ou les apports de l'ethnographie

Si, dans le désert Oriental, la consommation de sébestes de la variété domestique (sous forme probablement sèche) devait permettre de varier les plaisirs dans les stations et autres sites d'exploitation des mines et carrières de la région, on lui trouvait peut-être aussi des applications médicinales. Mais quant à la Vallée, hormis le seul document *P.Ross.Georg*. II 19 où le fruit apparaît sous une forme sèche suggérant qu'il était destiné à la consommation, on ne le voit guère apparaître en contexte alimentaire et les textes ne nous informent pas autrement sur ses usages. Peut-être faut-il alors aller chercher ailleurs : G. Schweinfurth, commentant la présence de l'espèce dans les jardins arabes, notait que le seul usage auquel il était encore destiné en Égypte était la production de glu ;[77] de même V. Täckholm présentait l'espèce identifiée dans les vestiges du monastère de Phoibammon ainsi : « This is the well-known "Mokheit" in Egypt, an Indian tree cultivated (and sometimes naturalised) in the Mediterranean districts, and, especially, in the Oases for its fruit, a drupe of orange colour and sweet, somewhat astringent in taste. The slimy content is nowadays mainly used for making bird-lime, formerly the fruit was also used medically ».[78] Cet usage de la pulpe visqueuse du *Cordia* comme glu a été plus récemment mise en avant à la faveur de découvertes archéologiques de fruits du sébestier à Marseille et Nîmes (époque romaine) d'une part, et en Israël (époque médiévale) d'autre part, évoquant en l'occurrence à l'auteur les usages centenaires de la pratique de la chasse à la glu dans cette région, et de rappeler que d'après Delile : « On exportait autrefois de l'Égypte et de Syrie la glu que l'on y faisait avec le fruit de cet arbre, et qu'à Venise on appelait *glu d'Alexandrie*. Elle était d'une saveur douce, et avait une couleur blanche comme la chair du fruit, et contenait encore des noyaux du fruit ».[79] M. Kislev rassemble par ailleurs divers témoignages décrivant les techniques utilisées au

[76] Valentina Caracuta et al., « Farming and Trade in Amheida/Trimithis (Dakhla Oasis, Egypt): New Insights from Archaeobotanical Analysis: Progress in African Archaeobotany », in *Plants and People in the African Past: Progress in African Archaeobotany*, éd. Anna Maria Mercuri et al. (Cham : Springer International Publishing, 2018), 67, évoquant le rapport préliminaire de L. Lodwick (2013).

[77] Schweinfurth, *Flore*, 308 (cité *supra*).

[78] Täckholm, « Botanical identification », 29.

[79] Laurent Bouby, Anne Bouchette, Isabel Figueiral, « Sebesten fruits (*Cordia myxa* L.) in *Gallia Narbonensis*

moins jusqu'au siècle dernier pour capturer les oiseaux migrateurs – dont le passage en Égypte, à l'automne, correspond à la saison de fructification du sébestier –, ainsi que les mesures officielles prises pour protéger ces oiseaux à travers l'interdiction, au début du XX^e^ s., non seulement de l'utilisation de la glu mais aussi de la culture de l' « arbre à gluaux » (« birdlime tree », selon le sens de son nom en arabe *muḫayṭ*).[80] L'enquête menée par N. Henein dans la région du lac Manzala, dans le delta du Nil,[81] montre néanmoins la perpétuation de cette pratique puisque ce dernier relève non seulement la présence du sébestier – dont les habitants consomment souvent les fruits, précise-t-il – mais aussi l'ancrage des pratiques d'oisellerie associées. Ces dernières impliquent l'érection de structures légères en roseaux sur lesquelles sont placés des gluaux, branches enduites de glu préparée à partir du fruit du *Cordia* : « Ce petit fruit à noyau [...] est cueilli, fendu et placé dans une jarre en terre cuite contenant un peu d'eau tiède, où on le laisse tremper plusieurs heures en agitant de temps à autre. Ce fruit contient une matière visqueuse et épaisse, qui, après macération, donne un liquide gluant. De la mélasse y est ajoutée pour augmenter encore la force d'adhésion de cette glu ».[82]

Si cette technique de chasse à la glu était bien connue du monde gréco-romain qui employait non pas le sébestier mais les baies du gui (*ixos* / ἶξός et *viscum*) pour préparer la glu de l'*ixeutēs* (ἰξευτής) grec et de l'*auceps* latin – aux activités desquels est notamment consacré le poème didactique des *Ixeutiques* de Denys –,[83] elle reste apparemment inconnue du monde égyptien ancien. Néanmoins, on ne peut manquer de faire remarquer deux désignations d'oiseleurs dans la documentation papyrologique grecque. La première apparaît dans les archives de Zénon, à travers la précision du technonyme *ornithothēras* (ὀρνιθοθήρας) accolé à un nom dans une comptabilité (*P.Cair.Zen*. III 59398) ; n'impliquant pas de technique particulière,[84] il vient s'ajouter aux autres attestations de chasses aux oiseaux sans autre forme de spécification. La seconde, datée du règne d'Auguste, se trouve dans un petit reçu sur ostracon provenant de la région d'Éléphantine (*SB* XXII 15805), de ceux que l'on ne compte pas dans la

(Southern France): a trade item from the Eastern Mediterranean? », *Vegetation History and Archaeobotany* 20 (2011): 397–404 ; Kislev, « Archaeobotanical evidence », 134–135 et Raffeneau-Delile, « Flore d'Égypte », 194.

[80] Sur les noms anciens de l'arbre, voir notamment les remarques de Silvestre de Sacy in *Relation de l'Égypte, par Abd-Allatif, médecin arabe de Bagdad* (Paris : Imprimerie impériale 1810), 71–73.

[81] Nessim Henein, « La chasse aux gluaux », in *Hommages à Fayza Haikal* (BiEtud 138), éd. Nicolas Grimal, Amr Kamel, Cynthia May-Sheikholeslami (Le Caire : Ifao 2004), 125–131, refondu dans Nessim Henein, *Pêche et chasse au lac Manzala. Delta du Nil* (Le Caire : Ifao, 2010), 364–368.

[82] Henein, *Pêche et chasse*, 366.

[83] Sur les activités – en réalité plus variées que le seul usage des gluaux – et l'ingéniosité des oiseleurs gréco-romains, on renvoie au chapitre richement illustré tant par les textes que par l'iconographie qu'a développé Christophe Vendries sur la question dans « L'*auceps*, les gluaux et l'appeau. À propos de la ruse et de l'habileté du chasseur d'oiseaux », in *Chasses antiques : Pratiques et représentations dans le monde gréco-romain (III^e^ s. av.-IV^e^ s. apr. J.-C.)*, éd. Jean Trinquier et Christophe Vendries (Rennes : Presses universitaires de Rennes, 2007), 119–140.

[84] C'est l'oiseleur d'Ar., *Av*. v. 62, cf. aussi l'*ornitheutēs* (ὀρνιθευτής), v. 526, avec une liste des techniques employées, incluant, entre autres filets et lacets, l'utilisation de gluaux (*rhabdous*, ῥάβδους).

documentation papyrologique. Celui-là fait apparaître un autre hapax de la documentation grecque d'Égypte, plus intéressant parce qu'il conserve un paiement effectué pour « la taxe des chasseurs aux gluaux », *telos ixeutōn*, τέλος ἰξευ(τῶν) ; et son éditeur, G. Wagner, de noter ainsi : « Onès was an ἰξευτής, a fowler, who catches birds with birdlime (ἰξός); as far as we know, neither this kind of activity nor the tax itself are known in the papyrological documentation ».[85] S'il n'y a pas eu, à ma connaissance, de nouvelles attestations papyrologiques de cette activité depuis cette publication,[86] on ne peut manquer de s'interroger sur le type de glu utilisé et noter, à tout le moins, que cette mention de chasseur aux gluaux n'apparaît pas si lointaine, tant chronologiquement que géographiquement des échanges de sébestes évoqués dans les ostraca du désert Oriental. S'il faut, avec N. Henein, mettre ce texte au dossier allant dans le sens d'une introduction de la technique en Égypte à l'époque romaine,[87] cette dernière aurait toutes les chances d'avoir été adaptée aux produits disponibles localement. On en vient aussi à se demander s'il ne faut pas également considérer la possibilité que cette technique ait été déjà utilisée dans l'oasis de Kharga à l'époque perse : là, les sébestiers ne manquent pas et la chasse aux oiseaux migrateurs est maintenant bien attestée dans les documents « de la pratique » grâce aux travaux de D. Agut-Labordère et M. Chauveau. Si la question des techniques pratiquées restait là sans réponse définitive et conduisait les auteurs à envisager le filet, l'important nombre d'oiseaux mentionné dans les baux de concessions de chasse situées dans les zones humides dites *gmgm/ggm* et le fait que des enfants participent à ces chasses invite à envisager la possibilité de la chasse aux gluaux.[88]

Sans que les éléments apportés ici suffisent évidemment pour en déduire l'utilisation des sébestes dans les pratiques d'oisellerie d'Égypte, on laisse à l'œuvre de l'imagination la facilité

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[85] Guy Wagner, « Kôm Ombo, Second Preliminary Report », *Zeitschrift für Papyrologie und Epigraphik* 107 (1995) : 125.

[86] On n'ose proposer de lire dans *O.Strasb*. I 295, un reçu du même type, daté de l'an 66, et en contexte quelque peu lacunaire, le mot *ixobolos* (ἰξοβόλος) (l. 1 : ειξοβο( )). On attend là le nom d'une taxe et ἰξοβόλος est un synonyme d'ἰξευτής qui semble s'imposer mais il n'est pas autrement attesté que dans les *Apotelesmata* du Ps.-Man. 4, 243 (cf. aussi ἰξοβολέω, *Anthologie grecque* IX, 273.5).

[87] Henein, « La chasse aux gluaux », 126 et *Chasse et pêche*, 364 qui renvoie à Steven Goodman et Peter Meininger, *The birds of Egypt* (Oxford/New York : Oxford University Press, 1989), 75, où les auteurs évoquent un article dû à l'ornithologue britannique John Lewis Bonhote, « Bird liming in lower Egypt », *Ministry of Public Works, Zoological Service Publ.* 28 (1919), selon lequel la pratique pourrait remonter à l'époque romaine (voir le compte rendu dans W.L.M. (Waldo Lee McAtee), *The Auk* 37, no. 4 (1920), 621–622, sur l'usage de *Cordia myxa*). Vendries, « L'*auceps*, les gluaux et l'appeau », 138–139 n. 125 écarte quant à lui la chasse aux gluaux des pratiques égyptiennes à propos de la mention d'un oiseleur avec ses gluaux dans la procession isiaque d'Apulée, *Métamorphoses* XI, 8.

[88] Damien Agut-Labordère et Michel Chauveau, « La chasse aux *kémis* dans l'Oasis de Kharga à l'époque perse (O. Man. 4162 et 4164) », in *Apprivoiser le sauvage / Taming the Wild*, éd. Magali Massiera, Frédéric Rouffet et Bernard Mathieu (Montpellier : Cahiers Égypte Nilotique et Méditerranéenne, 2015), 1–18. C'est à D. Agut-Labordère que je dois d'avoir mon attention attirée sur ce point : la rente annuelle s'élevant à 100 oiseaux, il faut considérer avec les auteurs que, pour être favorable à l'exploitant, le rendement annuel devait « dépasser largement le double du loyer fixé ». Ibid., not. 4 n. 6.

avec laquelle ce type de technique pouvait vraisemblablement se transmettre et se diffuser, encourageant peut-être à son tour la culture du sébestier. La présence de ces arbres dans un domaine, a fortiori en association avec un verger, permettait en effet d'assurer la disponibilité à portée de main d'un produit permettant tant de protéger les fruitiers d'un verger des prédateurs ailés que d'obtenir à moindre coût des oiseaux, que ce soit pour les consommer ou pour les revendre.

3. Conclusion

En conclusion à ces études préliminaires proposées pour illustrer une approche proposant de croiser plus systématiquement sources textuelles et archéobotaniques grâce au soutien des humanités numériques,[89] on souhaiterait souligner le caractère exploratoire de ces recherches. Comme le montre bien le cas du sébestier, si elles partent d'un phytonyme se présentant dans le corpus documentaire des sources papyrologiques, elles n'engagent pas seulement l'identification des plantes mais visent plus largement à tenter de restituer dans le contexte égyptien leurs modes de culture et d'exploitation. À ce titre, les deux cas présentés ici font entrevoir des profils différents. Mis à part aux III^{e} et II^{e} s. av. J.-C., le pommier (*mēlea*, μηλέα) ne se distingue guère en tant que fruitier cultivé dans les textes. Si la mention de ses fruits dans les loyers de contrats implique sa culture locale, c'est essentiellement en tant qu'objet de consommation qu'il est mentionné, que ce soit dans les listes et autres comptabilités alimentaires ou alors dans les correspondances évoquant des envois de fruits. En ce sens, le faciès de ses apparitions dans la documentation papyrologique est similaire à celui des grenades, jujubes ou encore des pêches et des abricots d'époque romaine. Le sébestier apparaît quant à lui plus nettement en tant qu'arbre cultivé, mais ses fruits ne sont que peu représentés et n'apparaissent pas dans les comptabilités alimentaires. Si cela peut amener à déconsidérer son importance économique dans l'Égypte gréco-romaine, c'est le champ des études ethnographiques qui permet de faire ressortir un usage traditionnel des sébestes qui, s'il a bien été diffusé à l'époque romaine – ou avant – devait appartenir alors aux milieux encore mal connus des aires marginales anciennes et de leurs activités de chasse, de pêche et de cueillette.

[89] Les données présentées ici sont enregistrées et consultables dans leur version numérique sur la base Ergaleion : on y retrouvera les attestations textuelles et archéologiques visualisables sur des cartes ainsi que des liens vers des ressources complémentaires en ligne.

Seven Years in Greece – Carl Fraas (1810–1875) and His Identifications of Dioscuridean Plant Names*

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/ Abstract

Between 1835 and 1842 the Bavarian Botanist Carl Fraas lived in Athens and was appointed professor of botany at the newly founded university. He used this time for botanical excursions, which also had the purpose of identifying ancient plant names. The results of his research were published as *Synopsis plantarum florae classicae* (München 1845) – a work that Sir Arthur Hort dismissed as "ambitious but uncritical". Nevertheless, some of Fraas' suggestions have prevailed over the identifications of John Sibthorp (1758–1796) and Kurt Sprengel (1766–1833) and have found their way, among others, into Hort's Theophrastus Loeb edition (1926) and the Liddell-Scott-Jones Lexicon. In my paper I will analyze some of his merits and demerits and place him in the ongoing debate on Dioscuridean plant names.

Tra il 1835 e il 1842 il botanico bavarese Carl Fraas visse ad Atene e fu nominato professore di botanica presso la neonata università. Utilizzò questo periodo per fare delle escursioni botaniche, che avevano anche lo scopo di identificare antichi nomi di piante. I risultati delle sue ricerche furono pubblicati col titolo di Synopsis plantarum florae classicae *(Monaco di Baviera, 1845), opera che Sir Arthur Hort liquidò come "ambiziosa ma acritica". Tuttavia, alcuni dei suggerimenti di Fraas hanno prevalso sulle identificazioni di John Sibthorp (1758–1796) e Kurt Sprengel (1766–1833) e hanno trovato posto, tra gli altri, nell'edizione Loeb di Teofrasto curata da Hort (1926) e nel Liddell-Scott-Jones. Nel mio articolo analizzerò alcuni dei suoi meriti e demeriti e lo collocherò nel dibattito in corso sui nomi delle piante dioscoridee.*

/ Keywords

Ancient flora; Identification of plants; Dioscorides; Theophrastus.

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1. Introduction

In studying the meaning of ancient Greek plant names, sooner or later one ends up with 19th century scholarship. The majority of modern translations in the Liddle-Scott-Jones Lexicon and in Jacque André's *Les noms de plantes dans la Rome antique*, and also many in Suzanne Amigues,[1] have a long tradition going back to the 18th/19th, often to the 16th century.

Unfortunately, unlike Severino in Umberto Eco's *Il nome della rosa*, pre- and early modern botanists did not use Linnean binomial nomenclature. If one does not want to get lost in botanical-historical investigations, it is pragmatic to start with the literature of the 18th/19th century. For here we have for the first time a halfway fixed point of reference, namely the Linnean nomenclature. Moreover, it was only in this period that floristic research of the area relevant to Theophrastus and Dioscorides began.

I will first briefly outline the state of botanical research in the 19th century concerning Dioscorides. On this basis and in the context of philhellenism, it is possible to shed light on Fraas' approach, whereby his biography also plays a major role. After this, I will give four examples of Fraas' contributions to plant identification and finally try to draw some conclusions.

2. State of research in Fraas' days

It is well known that the important botanists John Sibthorp (1758–1796) and James Edward Smith (1759–1828) were also interested in ancient plant names – without, as one might think, regarding Dioscorides as a saint.[2] On their journey to Greece and the Levant, they also had in their luggage copperplate reproductions of the figures in the Vienna[3] and Neapolitan[4] Dioscorides manuscripts. Only five copies of this series (consisting of 410 plates) are known

[1] Henry George Liddell, Robert Scott and Henry Stuart Jones, *A Greek-English Lexicon*. 9. ed. with a revised supplement (Oxford: Clarendon Press, 1968); Jacques André, *Les noms de plantes dans la Rome antique* (Paris: Les Belles Lettres, 1985); Suzanne Amigues, *Théophraste. Recherches sur les plantes*, 5 vol. (Paris: Les Belles Lettres, 1988–2006) and Ead., *Études de botanique antique* (Paris: Académie des Inscriptions et Belles-Lettres, 2002).

[2] Sibthorp in a letter to John Hawkins (1761–1841): "The Grecian Flora has been little examined, I think I shall be able to throw some Light on the Absurdity of Dioscorides. I have by the Friendship of Jacquin procured a Copy of the Drawings of the oldest Manuscript which is extant which will facilitate my Enquiries", quoted in Hans Walter Lack, "Die Kupferstiche von frühbyzantinischen Pflanzenabbildungen im Besitz von Linné, Sibthorp und Kollár", *Annalen des Naturhistorischen Museums in Wien. Serie B für Botanik und Zoologie* 100 (1998): 634.

[3] Österreichische Nationalbibliothek Wien, Cod. Vindob. med. gr. 1. As facsimile: Otto Mazal (ed.), *Der Wiener Dioskurides [...]*, 2 vol. (Graz: Akademische Druck- und Verlagsanstalt, 1998) and in the monumental edition by Joseph von Karabacek, *Codex Aniciae Iulianae picturis illustratus* (Lugduni Batavorum: Sijthof, 1906).

[4] Biblioteca Nazionale di Napoli, Neapol. ex-Vindob. med. gr. 1, online available in the World Digital Library, https://www.loc.gov/item/2021667873/ (accessed December 12, 2023).

to have existed – kept now in Vienna, Oxford and London. One series went 1786 to Sibthorp, another, but not as extensive, was given 1763 to Carl von Linné (1707–1778).[5]

However, Sibthorp has not only identified the illustrated plants, but also the described ones. Most of the interpretations are due to Sibthorp, but Smith, too, contributed some identifications.

After Sibthorp's early death, Smith published the material first as *Prodromus* (1806–1813) and later in the magnificently illustrated *Flora Graeca* (1806–1840).[6] According to Smith himself, he compared Sibthorp's identifications "with the best Dioscorides editions".[7] A reprint of the *Flora graeca* with modern commentary and up-to-date distribution maps has been published by Arne Strid (2009–2013), who can probably be described as the best living expert on the eastern Mediterranean flora.

These new identifications by Sibthorp were then used by the German botanist and medical historian Kurt Sprengel (1766–1833) in his commentaries on Theophrastus and Dioscorides.[8] Unlike Sibthorp, Sprengel had no autoptic knowledge of the flora, but he did have a large library. He was one of the few of his time who could survey the entire commentary literature on Dioscorides. For this reason, his commentary is still valuable today. For example, he draws not only on the well-known authors such as Leonhart Fuchs (1501–1566) and Pietro Andrea Mattioli (1501–1578), but also on lesser known but important ones such as Luigi Anguillara (ca. 1512–1570), Fabio Colonna (1567–1640) or Prospero Alpini (1553–1617).[9] Unfortunately, Sprengel has not analysed the listed editions exhaustively. It is therefore advisable to do own research if there is any doubt.

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[5] Lack, "Die Kupferstiche", 629–630.

[6] John Sibthorp and James Smith, *Florae Graecae prodromus [...]*, 2 vol. (Londini: Taylor et Socii, 1806–1813); Hans Walter Lack and David J. Mabberley, *The Flora Graeca Story [...]* (Oxford: Oxford University Press, 1999), 191–225 and Arne Strid and Barbro Strid, *Flora Graeca Sibthorpiana. An Annotated Reissue*, 2 vol. (Rugell: Koeltz, 2009), v–xiv.

[7] *Omnia haec synonyma cum optimis editionibus Dioscoridis comparavi*, Sibthorp and Smith, *Prodromus*, xiv. Two of Sibthorp's identifications were particularly noteworthy for Smith, cf. Lack and Mabberley, *Flora Graeca Story*, 200: the identification of φοῦ as *Valeriana dioscoridis* Sm. in Sibthorp and Smith and that of the black ἐλλέβορος as *Helleborus orientalis* Lam. (syn. *H. officinalis* Sm. in Sibthorp and Smith). These interpretations are still being discussed today, cf. Maximilian Haars, *Die allgemeinen Wirkungspotenziale der einfachen Arzneimittel bei Galen. Oreibasios, Collectiones medicae XV. Einleitung, Übersetzung und pharmazeutischer Kommentar*, (Stuttgart: WVG, 2018), 410–411 and 223–224.

[8] Kurt Sprengel, *Pedanii Dioscoridis Anazarbei De Materia medica [...]*, 2 vol. (Lipsiae: Knobloch, 1829–1830).

[9] Since Sprengel himself does not provide a bibliography I list the most important botanical authors here: Otto Brunfels, *Herbarum vivae eicones [...]* (Argentorati: Schott, 1532); Otto Brunfels, *Novi Herbarii Tomus II* (Argentorati: Schott, 1536); Leonhart Fuchs, *De historia stirpium commentarii insignes [...]* (Basileae: Isengrin, 1542); Pietro Andrea Mattioli: *Opera... omnia... Comment. in Dsc. de Medica materia. ed. Casparo Bauhino [...]* (Basileae: König, 1674); Hieronymus Bock, *New Kreuterbuch [...]* (Argentorati: Rihel, 1546); Valerius Cordus, *Annotationes in Dsc. De Medica materia libros V [...]* (Argentorati: Rihel, 1561); Luigi M. Anguillara, *Semplici [...]* (Vinegia: Valgrisius, 1561); Matthias Lobelius, *Stirpium Adversaria Nova [...]* (Londini: Purfoetius,

3. Fraas – Life, Work and Influence

A third important person in the 19th century Dioscorides research is the Bavarian botanist Carl Fraas, who is the subject of this paper. Of course, there are other authors before and at the same time as Fraas, but these are the most important ones to present an overall concept to the plant names in Dioscorides.[10]

The biography of Fraas, who later emerged primarily as an agronomist, has been well researched by historians of botany and I am basing the following on their findings.[11]

Fraas was born 1810 near Bamberg, Bavaria. After studies in Philosophy, Botany and Medicine in Munich (with flying colors), he took part in the philhellenism characteristic of his time and accompanied 1836 Graf Saporta (1794–1853) as court master to Athens. Saporta was major-domo of King Otho of Greece (1815–1867), who, together with his wife, also had a passion for natural history and botanical gardens.

Already in 1837 Fraas was appointed professor of botany at the newly founded 'Ottonische Universität' in Athens (later National and Kapodistrian University) and director of the Botanical Garden. It is said that Theophrastus already had a garden on these grounds.[12]

1570–1571); Fabio Colonna, *ΦΥΤΟΒΑΣΑΝΟΣ [...]* (Florentiae: Io. Iacobus Carlinus, 1744); Carolus Clusius, *Rariorum plantarum historia [...]* (Antverpiae: Moretus, 1601); Carolus Clusius, *Exoticorum libri decem [...]* (Antverpiae: Officina Plantiniana, 1605); Prosper Alpini, *De plantis exoticis libri duo [...]* (Venetiis: Guerilius, 1629). Sprengel's plant identifications are not essentially based on the commentary by Janus Saracenus, *Pedacii Dioscorides Anazarbaei Opera* ([Francofurti]: Marnius & Aubrius, 1598), as Riddle believes, since Saracenus does not offer any identifications (but primarily scholia), but cf. John Riddle, *Dioscorides on Pharmacy and Medicine* (Austin: University of Texas Press, 1985), xxv; John Riddle, "Dioscorides", in *Catalogus translationum et commentariorum*, ed. F. Edward Cranz and Paul Oscar Kristeller, vol. 4 (Washington: Catholic University of America Press, 1980), 41–44.

[10] Joseph Pitton de Tournefort (1656–1708) who was the first, so to speak modern, botanist to undertake a journey to the Levant, rarely refers to plant names in Dsc., Plin. or Thphr., cf. Joseph Pitton de Tournefort, *Relation d'un voyage du Levant [...]* (Lyon: Imprimerie Royale, 1717), vol. 1, 39–40 (*diktamnon*, δίκταμνον), 41 (*chamaileōn leukos*, χαμαιλέων λευκός), 90 (*kisthos/ladanon*, κίσθος/λάδανον), 190 (*stoibē*, στοιβή); vol. 2, 30–31 (*helenion*, ἑλένιον), 110 (*skammōnia*, σκαμμωνία); 246–247 (*kissos* / κισσός). Nor was the purpose of his trip to deal with these names. Before Fraas, Julius Billerbeck had already compiled important sources, which still represent a helpful synopsis, see Julius Billerbeck, *Flora classica* (Leipzig: J. C. Hinrichs, 1824). For further contributions see n. 28.

[11] Heinz Kalheber, "Bavarian Plant Collectors in Greece: 1. Franz Xaver Berger, Franz Zuccarini and Carl Nikolaus Fraas", *Willdenowia* 36, no. 1 (2006): 565–578 and Fritz Andreas Zehetmeier, *Carl Nikolaus Fraas (1810–1875). Ein bayerischer Agrarwissenschaftler und Reformer der intensiven Landwirtschaft* (München: Utz, 1995), 151.

[12] "It is said that he (sc. Thphr.) even came into possession of his own garden after the death of Aristotle, since Demetrius of Phalerum, who was also his friend, helped him to obtain it" and in his testament: "The garden and the walk and all the dwellings next to the garden I give to those of (my) friends... who wish... to philosophize together in them", translation by William W. Fortenbaugh et al., *Theophrastus of Eresus. Sources for his Life, Writings, Thought and Influence*, 2 vol. (Leiden: Brill, 1992–1995), 25.1–3 and 43 (= D.L., V, 39 and 51 respectively). It is not clear from Diogenes where this garden was located, nor whether it was a kind of "botanical garden". The property was probably near the Lyceum, at a sanctuary called "Museion", which was located after a boundary

Fig. 1. The National Garden behind Syntagma Square in Athens. Theophrastus (around 371–287 BC) acquired a garden plot here with the help of his pupil and friend Demetrios of Phaleron (ca. 360–280 BC). Much later, it was transformed into a botanical garden, in which Carl Fraas played a major role. Photo © M. Haars.

Under Fraas' administration, many commercial plants were imported, especially date palms (*Phoenix dactylifera* L.).[13] Today this is the National Garden of Athens (*Ethnikos Kēpos*, Εθνικός Κήπος), which most visitors will remember for its characteristic avenue of date palms (Fig. 1).

Fraas' first botanical excursion in March 1837 took him to the Peloponnese (Killini, Taygetos Mountains, Nauplia, Corinth), another, in 1840, to Thebes, Orchomenos and finally to Mt. Parnassos reaching the *Abies* region. On his return he botanized at Mt. Helikon and on Mt. Dirfys and went back to Athens via Steni, Chalkida and Aulis.

Fraas used these seven years, among others, for identifying the plant names in classical authors, especially Dioscurides. He did not have a large library, but he did have Sprengel's edition and plenty of time to botanise at the *locus classicus*. His autoptic knowledge of the Greek flora still makes his statements interesting today – especially as he found vegetation from pre-industrial times.

After his return to Bavaria, he published his results in a monograph as a synopsis (Fig. 2) arranged by Linnean Synonyms in systematic order.[14] This survey of the ancient plant names draws especially on the Greek authors Theophrastus and Dioscorides, and to a lesser extent on Pliny and other Greek and Latin sources. The arrangement is systematic, that means related species are placed next to each other. In addition, Fraas has collected the contemporary Greek names – which, as it turned out, did not contribute to the identification of the old names. In this context he criticises Sibthorp, who apparently put many old classical names into the mouths of the new Greeks.[15]

The reception of his work was divided. On the one hand, botanists welcomed Fraas' field research and his contributions to the Greek flora. A plant was named in his honor (*Crepis fraasii* Sch. Bip.).[16] However, opinions differ on the historical contributions.

The historian of botany E.H.F. Meyer remarked on Fraas: "These writings suffer from the basic error of most works of a similar kind, namely, to take the completely uncertain for probable, the only probable for certain; they are therefore to be used with caution, but until we have a better and more complete flora of Greece from a botanist who is also a scholar of antiquity, they are by no means to be neglected".[17]

Sir Arthur Hort in his Theophrastus Loeb edition (1926) dismissed the *Synopsis* as "am-

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stone in today's National Garden, cf. Hans Rupprecht Goette and Jürgen Hammerstaedt, *Das antike Athen. Ein literarischer Stadtführer* (München: C.H. Beck, 2004), 214–215.

[13] Kalheber, *Bavarian Plant Collectors*, 573.

[14] Carl Fraas, *Synopsis plantarum florae classicae [...]* (München: Verlag von E.A. Fleischmann, 1845).

[15] This has already been noted by Kurt Sprengel, *Theophrasts Naturgeschichte der Gewächse*, 2 vol. (Altona: J. F. Hammerich, 1822); here vol. 2, 6. For this, he criticizes Sibthorp and even more Tournefort (especially the statement in his *Relation d'un voyage du Levant*, vol. 1, 34).

[16] Kalheber, *Bavarian Plant Collectors*, 565.

[17] Ernst H. F. Meyer, *Geschichte der Botanik*, vol. 1 (Königsberg: Bornträger, 1854), 188.

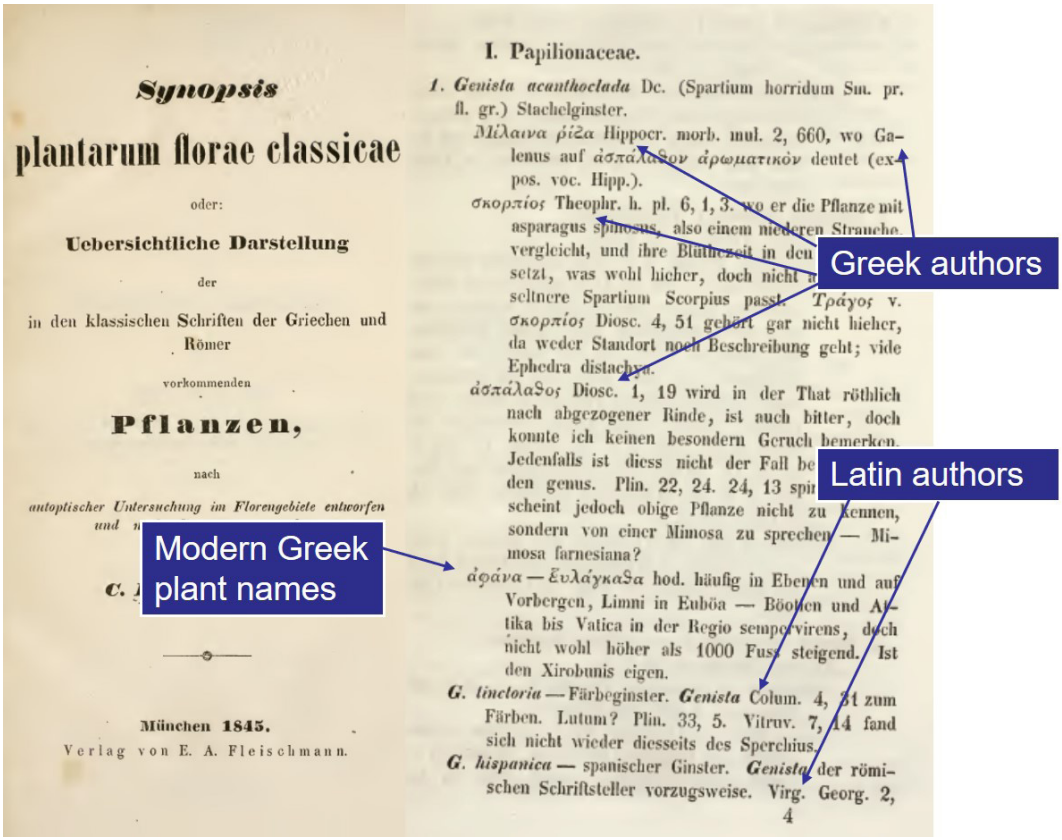

Fig. 2. Fraas' *Synopsis* (1845): included ancient authors.

bitious but uncritical".[18] Certainly, on the one hand, Hort is right: there are many comments in Fraas that are unfounded, not only from today's perspective. However, directly following his criticism, Hort himself provides a list of plant names, which benefits from Fraas' suggestions. These identifications, collected and improved by the Kew-Gardens botanist Sir William Turner Thiselton-Dyer (1843–1928), then also passed into the LSJ. And in the case of Jacques André, Fraas eventually became even more prevalent. So, we have to deal with him if we want to translate these plant names. My aim here is not to show what Fraas did not know, but to discuss some of his proposals that still appear today in the reference works mentioned.

I have therefore looked for identifications that were first suggested by Fraas, in other words that do not yet appear in Sprengel or Sibthorp, and which are still being discussed today. There are, of course, many others[19] and my selection of four examples was rather random.

[18] Arthur Hort (ed.), *Theophrastus. Enquiry into Plants [...]*, vol. 2 (London: Heinemann, 1926), 436.

[19] Other relevant examples are Dsc., *MM* IV, 61 (*astragalos*, ἀστράγαλος), II, 158 (*erysimon*, ἐρύσιμον), IV, 16 (*leimōnion*, λειμώνιον), II, 114 (*oxylapathon*, ὀξυλάπαθον), IV, 14 (*periklymenon*, περικλύμενον); IV, 59 (*per-*

4. *Myos ōta* (μυὸς ὦτα), Dsc., *MM* II 183 (I, 253 W.)

The first example is the eponymous plant for the genus *Myosotis* in Linné. Sprengel's text (i.e. Fraas' basis) differs from Wellmann's[20] in the description of the plant in only one word (see below).

In my translation of Wellmann's text the description runs as follows:

> *Myos* ōta; some call it *Myos* ōtis. It sprouts many stalks from a single root, reddish (*hyperythrous*, ὑπερύθρους) and hollow at the base (*katōthen koilous*, κάτωθεν κοίλους), the leaves are narrow and elongated (*stena kai epimēkē*, στενὰ καὶ ἐπιμήκη), with a raised vein (*rhachin epērmenēn*, ῥάχιν ἐπηρμένην), darkish (*melanizonta*, μελανίζοντα), growing in pairs at intervals (*ana dyo pephykota ek diastēmatōn*, ἀνὰ δύο πεφυκότα ἐκ διαστημάτων), ending in a sharp point (*eis oxy*, εἰς ὀξύ). Delicate little stalks grow from the (leaf-)axils (*lepta kaulia ek tōn maschalōn*, λεπτὰ καυλία ἐκ τῶν μασχαλῶν), on which there are small dark-bluish flowers (*eph' hōn anthyllia kyanizonta*, ἐφ' ὧν ἀνθύλλια κυανίζοντα), like those of the pimpernel (*anagallis*, ἀναγαλλίς).

The plant *anagallis* has been identified with certainty, Caterina Manco even placed the figure in its red form on the conference poster. The Vienna and the Neapolitan codex offer both illustrations with the blue and the red form.[21] However, the more common one is the dark blue. Dioscorides continues:

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istereōn, περιστερεών); III, 66 (*petroselinon*, πετροσέλινον); IV, 139 (*polygalon*, πολύγαλον); IV, 163 (*sēsamoeides to leukon*, σησαμοειδὲς τὸ λευκόν); IV, 179 (*empetron*, ἔμπετρον); IV, 97 (*thaliētron*, θαλίητρον); IV, 123 (*bounion*, βούνιον); III, 34 (*hēdyosmon agrion*, ἡδύοσμον ἄγριον); II, 121 (*krambē agria*, κράμβη ἀγρία); IV, 58 (*agēraton*, ἀγήρατον); IV, 31 (*agrōstis hē en tō Parnassō*, ἄγρωστις ἡ ἐν τῷ Παρνασσῷ); III, 62 (*ammi*, ἄμμι); IV, 130 (*antirrhinon*, ἀντίρρινον); II, 177(*argemone*, ἀργεμώνη); IV, 105 (*arktion*, ἄρκτιον); III, 92 (asklēpias, ἀσκληπιάς); II, 155 (*kardamon*, κάρδαμον); II, 130 (*korōnopous*, κορωνόπους); II, 174 (*lepidion*, λεπίδιον); III, 76 (*sphondylion*, σφονδύλιον) and IV, 125 (*chamaikissos*, χαμαίκισσος).

[20] Max Wellmann (ed.), *Pedanii Dioscuridis Anazarbei De materia medica Libri quinque*, 3 vol. (Berlin: Weidmann, 1906–1914), here vol. 1, 253.

[21] Vindob. med. gr. 1, f. 39v/40v and Cod. Neap. ex-Vindob. med. gr. 1, f. 15r. In interpreting ancient plant illustrations, sensitivity is required to understand which details were important to ancient illustrators and which were not. What role chance may ultimately have played etc. In the case of *anagallis*, we notice that C shows four petals, while N shows five. Who has miscounted here? For the modern botanist, this is one of the most important features for using a dichotomous identification key. But was it the same for ancient physicians? Although the figures in C are generally considered to be more natural, the reverse is true here. Furthermore, the illustrations of the blue *anagallis* make it impossible to distinguish *A. arvensis* L. f. *azurea* from *A. foemina* Mill., which also has blue flowers – but this is unlikely to have made any difference to the effectiveness of this medicinal plant. Although it has often been argued that the illustrations of the 'luxury manuscripts' are of little value for the identification of Greek plants, we must not ignore the fact that they were not exclusively ornamental, but originally also served a practical purpose: the retrieval of the medicinal plant. See in more detail, Maximilian Haars, "A Botanical Perspective on the Illustrated Dioscorides", *History of Pharmacy and Pharmaceuticals* 66 (2024), 26–33.

> The root is as thick as a finger and has many secondary roots (*rhiza de daktylou to pachos, echousa pollas apoblastēseis*, ῥίζα δὲ δακτύλου τὸ πάχος, ἔχουσα πολλὰς ἀποβλαστήσεις). The overall habit of the herb is similar to *skolopendrion*, but smoother and smaller (*leiotera de kai elassōn*, λειοτέρα δὲ καὶ ἐλάσσων). Its root applied as a poultice cures lacrimal fistula. Some call *helxinē*, too, *myos* ōtis.

In Sprengel's text the habit is "smaller" (*leptotera*, λεπτοτέρα), which, according to Marie Cronier's studies,[22] would be the preferred reading, since witnessed in the *Escorialensis* manuscript (E) and Oribasius (Orib.). However, Wellmann prefered *leiotera* (λειοτέρα), the reading of the other mss., probably because Pliny (*HN* XXVII, 23 = IV, 237.5–6 Mayhoff)[23] speaks of *minusque hirsuta* and in § 105 (p. 261.20 Mayh.) of *levis herba*. Yet Wellmann does not seem to note that in § 23 only the synonymous *alsine* (*quam quidam myosoton appellant*) is being referred to. Although all interpreters of our passage (§ 105)[24] translate *lēvis* as "smooth", it would also be possible to read a short "e", then in the sense of "tender". The confusion of *levis* and *lēvis* is very common.[25] There are also content-related reasons in favor of *leptotera* (λεπτοτέρα): regardless of which of the two ferns *skolopendrion* (σκολοπένδριον) refers to,[26] these are not hairy at all, but smooth, which is why the comparison is more likely to refer to their habitus.

The figures in the most important illustrated Dioscorides manuscripts from Vienna,[27] Naples,[28]

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[22] Marie Cronier, "L'Herbier alphabétique grec de Dioscoride: : quelques remarques sur sa genèse et ses sources textuelles", in *Fito-zooterapia antigua y altomedieval: textos y doctrinas*, ed. Arsenio Ferraces Rodríguez (A Coruna: Universidade da Coruña, 2009), 33–59.

[23] Carolus Mayhoff (ed.), *C. Plini Secundi Naturalis historiae*, vol. 4: libri 23–30 (Stuttgart: Teubner, 1967).

[24] So also Alfred Ernout (ed.), *Pline l'Ancien, Histoire naturelle XXVII* (Paris: Les Belles Lettres 1959), 55 and 103 (commentary). Ernout confirms André's criticism of the identification. However, his remark that we are dealing here with an Egyptian plant is probably a confusion with the preceding chapter (Dsc., *MM* II, 182).

[25] I thank K. D. Fischer for the hint. See also Mayhoff's apparatus to line 20: "*an tenuis*?". The late antique Latin translation of Dioscorides has *lenis*, cf. Konrad Hofmann, Theodor Auracher and Hermann Stadler (ed.), "Dioscorides Longobardus", *Romanische Forschungen* 10 (1897), 246 line 15.

[26] *Skolopendrion* (Σκολοπένδριον) is a synonym of two ferns in Dioscorides: firstly of *asplēnon* (ἄσπληνον: Dsc., *MM* III, 134 – certainly *Ceterach officinarum* Willd.) and secondly of *polypodion* (πολυπόδιον: IV, 186 – probably *Polypodium vulgare* L.). Moreover, according to Ps.-Dsc. IV, 16 RV the plant *saxiphragon* (σαξίφραγον), which is to be neglected here. The actual *skolopendrion* is the spleen fern, *asplēnon* (ἄσπληνον). This is also a very well-known and frequently encountered plant. For ancient illustrations and a photo taken by me in Priene, West-Turkey see Maximilian Haars, "Identifikation der Pflanzen bei Dioskurides – Forschungsstand, Desiderate und Perspektiven", in Jochen Althoff, Diego de Brasi, Sabine Föllinger, Georg Wöhrle (ed.): *Antike Naturwissenschaft und ihre Rezeption. Vol. XXXIV* (Trier: Wissenschaftlicher Verlag Trier 2024, 87–114).

[27] Vindob. med. gr. 1, f. 230v, Daubeny gives the identification of Sibthorp, but strangely does not evaluate the illustration in Vindob., cf. Charles Daubeny, *Lectures on Roman husbandry* (Oxford: J. Wright, 1857), 312. Emmanuel puts several question marks after the same proposal and suggests – with justification – *Ruscus aculeatus* instead, cf. E. Emmanuel, "Étude comparative sur les plantes, dessinées dans le Codex constatinopolitanus de Dioscoride", *Schweizerische Wochenschrift für Chemie und Pharmacie* 50 (1912), 68.

[28] Neapol. ex-Vindob. med. gr. 1, f. 91r.

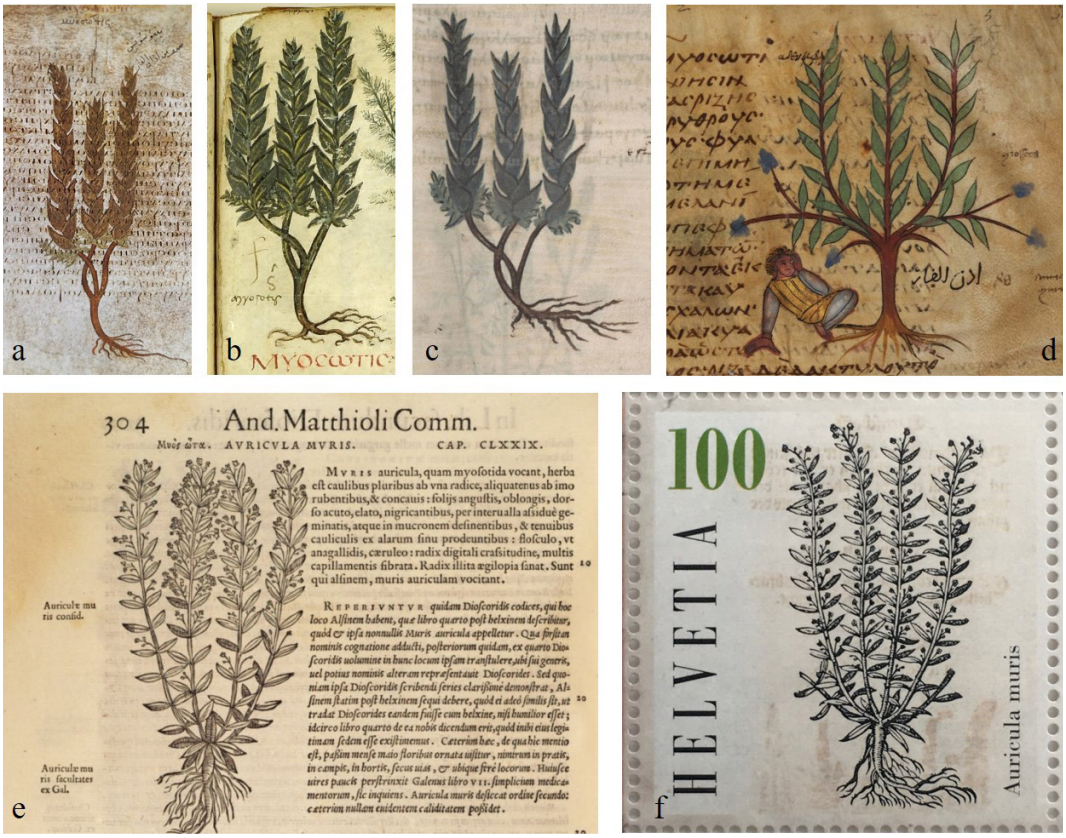

Fig. 3. a) Vindob. med. gr. 1, f. 230v; b) Neap. ex-Vindob. 1, f. 91r; c) Pierpont Morgan Library MS M.652, f. 106r; d) Par. gr. 2179, f. 5r; e) Mattioli, Dsc.-Comm. II 179: Venetiis 1554, p. 304 s. v. *auricula muris* (Public Domain); f) Swiss stamp showing Mattioli's *Auricula muris*. Owned by the Author.

Paris[29] and New York[30] do not help us any further (Fig. 3a–d). Presumably this is a fictitious plant conceived according to some of Dioscorides's indications, at any rate not *Myosotis* sp.

Based on the description in Dioscorides all authorities assume a species from the Boraginaceae family. Mattioli[31] shows a drawing (Fig. 3e), that has even made it onto a Swiss

[29] Paris, Bibliothèque nationale de France, Par. gr. 2179, f. 5r, on this Bonnet: "*Myosotis* sect. *Eumyosotis* DC.", cf. Edmond Bonnet, "Essai d'identification des plantes médicinales mentionnées par Dioscoride, d'après [...] Ms. Grec. No. 2179", *Janus* 8 (1903): 177. Griebeler rightly remarks: "The now unidentified *myos ōta* plant", Andrew Griebeler, "The Critical Tradition of Byzantine Botanical Illustration in the Alphabetical Dioscorides" (PhD diss., Berkely, 2019), 51 (I thank the author for a preprint version).

[30] New York, Pierpont Morgan Library MS M.652, f. 106r, Morgan Lib. note: "A. procumbens" – the notes on the website do not refer to the plants illustrated, but to the plants described by Dioscorides.

[31] Pietro Andrea Mattioli, *Commentarii in libros sex Pedacii Dioscoridis Anazarbei de medica materia [...]* (Venetiis: Valgrisius, 1554), 304 s.v. *auricula muris* (Fig. 3e).

stamp (Fig. 3f). Today it bears the name *Lappula squarrosa* (Retz.) Dumort.,[32] but was first described by Linné as *Myosotis* (this is also the presumed etymology of the modern genus name).[33] Sibthorp[34] then suggested *Aegonychon purpurocaeruleum* (L.) Holub (syn. *Lithospermum purpurocaeruleum* L.) as a more widespread species. The flowers are similar to those of *Anagallis*.[35] However, Sprengel[36] objected that the plant did not resemble the fern *skolopendrion* (*Ceterach officinarum* Willd.). He himself stuck with *Myosotis* L. and identified it as *M. scorpioides* L. (syn. *M. palustris* (L.) L.). From today's perspective, though, this species would be ruled out for not being native to Greece and Turkey, as it later turned out.[37] Finally, Fraas[38] suggested the related *Asperugo procumbens* L. This translation has been adopted by more recent authors.[39] In fact, there is much to support this species:[40] the shape of the leaves with the pronounced leaf vein, the hollow stem, the flowers. The drug *Herba Asperuginis* was later also used medicinally.[41] The distribution today is somewhat scattered (which of course does not necessarily mean anything with regard to the ancient flora): not everywhere in Greece, but well documented in Turkey. It only seems incongruous to be significantly larger than the Skolopendrion (*Ceterach officinarum* Willd.).

If we now compare the characteristics of all proposals (see the following table, see Fig. 4), we find the Fraas' species still fits best. Can Dioscorides' *myos ōtis* (μυὸς ὠτίς) therefore be identified? There are some arguments against this (shaded red in the table), so that final doubts remain. Is the initially seemingly detailed description even sufficient for a reasonably reliable identification?

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[32] For botanical details see Gustav Hegi, *Illustrierte Flora von Mitteleuropa* (= HEGI), 6 Bde. in 23 Teilbdn (in publication since 1909 by various publishers), here vol. 5 (1927), 2139 and Sandro Pignatti et al. (ed.), *Flora d'Italia* (= Fl. Ital.), 4 vol. (Milano: Edagricole, 2017–2019), here vol. 3 (2018), 189.

[33] Cf. also the explanation in Hellmut Genaust, *Etymologisches Wörterbuch der botanischen Pflanzennamen* (Hamburg: Nikol, 2005), 403–404, who, however, should have mentioned Mattioli.

[34] Sibthorp and Smith, *Prodromus*, 114.

[35] For botanical details on this sp. see HEGI vol. 5 (1927), 2154; Peter H. Davis et al. (ed.), *Flora of Turkey and the East Aegean Islands* (= Fl. Turk.), 11 vol. (Edinburgh: Edinburgh University Press, 1965–2000), here vol. 6 (1978), 314 and Fl. Ital. vol. 3 (2018), 142.

[36] Sprengel, *Dioscordis*, vol. 2, 488.

[37] Even today, it is still incorrectly listed for Greece in the Euro+Med Checklist, https://europlusmed.org (accessed December 12, 2023). There is no evidence that this species was native to the eastern Mediterranean in ancient times. When a plant is described as native or indigenous in a scientific flora, this means that it has been naturally occurring there for a very long time (beyond historical times). Human influences and climatic fluctuations can lead to changes in plant cover, which must be taken into account especially where the indigenous status is not verified. For botanical details see HEGI 5 (1927), 2161 and Fl. Ital. 3 (2018), 185.

[38] Fraas, *Synopsis*, 161.

[39] E.g., André, *Noms de plantes*, 166 and LSJ s. v. *myosōtis* (μυοσωτίς).

[40] The botanical data is taken from HEGI vol. 5 (1927), 2136; Fl. Ital. 3 (2018), 177 and Fl. Turk. 6 (1978), 264.

[41] Wolfgang Schneider, *Lexikon zur Arzneimittelgeschichte [...]*, 7 vols. (Frankfurt am Main: Govi-Verlag, 1968–1975), here vol. 5/1 (1974), 149.

Dsc. II 183	Distribution in Greece & Turkey	smaller than Asplenium ceterach (< 20 cm)	paired	narrow, elongated	mid-rib raised	on delicate stems growing from the axils	small	dark blue	similar to anagallis	
Proposals		**Habit**	**Leaves**			**Flowers**				**Lit.**
Lithospermum purpurocaeruleum		30 - 50 cm					< 20 mm			HEGI 5 (1927), p. 2154, Fl. Turk. 6 (1978), p. 314; Fl. Ital. 3 (2018), p. 142
Myosotis scorpioides		20 - 25 cm					6-8 mm	sky-blue		HEGI 5 (1927), p. 2161; Fl. Ital. 3 (2018), p. 185
Asperugo procumbens		10 - 70 cm					3 mm			HEGI 5 (1927), p. 2136; Fl. Ital. 3 (2018), p. 177
Lappula squarrosa		5-40 cm						sky-blue		HEGI 5 (1927), p. 2139; Fl. Ital. 3 (2018), p. 189

Fig. 4. Evaluation of the identifications for *myos ōta* (μυὸς ὦτα: Dsc., *MM* II, 183). © M. Haars.

It has been shown that none of the species corresponds exactly to Dioscorides' description. It cannot even be said that a species from the Boraginaceae family is meant here. The typical characteristics are not mentioned by Dioscorides. If instead of *leptotera* (λεπτοτέρα, "soft"), *leiotera* (λειοτέρα, in the sense of "smooth", "hairless") is to be read as a characteristic of the leaves, this would even be an exclusion criterion. As a consequence, the plant must therefore – with regard to the description in Dioscorides – be regarded as unidentified.[42]

5. *Heliotropion to mega* (ἡλιοτρόπιον τὸ μέγα), Dsc., *MM* IV, 190 (II, 338 W.)

The situation is different with the next example. The identification of the two *heliotropium* kinds by Fraas have again found their way into the LSJ s. v. *heliotropion he to mega* (ἡλιοτρόπιον: "ἡ. τὸ μέγα, *Heliotropium villosum*").

In my translation of Wellmann's text the description runs as follows:

[42] A more detailed table can be found in Haars, "Identifikation der Pflanzen" (appendix). Of course, it would be a methodological problem and would ultimately lead to circular reasoning if we were to recognize this species as the correct translation of the phytonym and assume that Dioscorides had made a mistake. That he makes mistakes is possible, even probable, but this could only be assessed – if at all – once all of his plant descriptions had been evaluated and compared with the parallel passages in Plin. Much research would still have to be done in this respect.

> Large *heliotropion* that some called *skorpiouron* from the morphology of its inflorescence (*apo tou peri to Anthos schēmatos*, ἀπὸ τοῦ περὶ τὸ ἄνθος σχήματος) and *heliotropion* from the phenomenon, that its leaves follow the position of the sun (*ek tou symperitrepesthai ta phylla tē tou heliou klisei*, ἐκ τοῦ συμπεριτρέπεσθαι τὰ φύλλα τῇ τοῦ ἡλίου κλίσει). It has leaves similar to those of basil (ōkimō *paraplēsia*, ὠκίμῳ παραπλήσια) but rougher and darker (*dasytera de kai melantera*, δασύτερα δὲ καὶ μελάντερα), two or three small stalks from the root, and from these, many branches; at the apices having a white flower, slightly purple, and curling like a scorpion's tail (*epikampes kathaper sporpiou oura*, ἐπικαμπὲς καθάπερ σκορπίου οὐρά); the root is thin and useless. It grows in rough places (*en trachesi topois*, ἐν τραχέσι τόποις).

The text Fraas used differs again in two words from Wellmann's but this time in reverse: Wellmann follows the Escorialensis manuscript (E) and Oribasius (Orib.) in which the leaves are described as *melantera* (μελάντερα), "darker", while Sprengel has *leukotera* (λευκότερα), "whiter". From a botanical point of view, both could be correct: the leaves of the identified species are indeed strikingly darker than those of basil. On the other hand, they have white hairs. Another variation is found in the colour of the flowers. Sprengel has Oribasius' reading *hypopyrron* (ὑπόπυρρον) while Wellmann follows the better witnessed *hypoporphyron* (ὑποπόρφυρον). Here, too, both could be justified from a botanical point of view. The flowers of *Heliotropium* species sometimes have a slightly purple shade and in some species the throat of the flower is also yellowish.

The illustrated mss. offer beautiful figures (Fig. 5, esp. a–c). In my opinion, *Heliotropium* species are certainly represented here. Not only the charecteristic inflorescences, but also the shape of the leaves are well taken.[43]

Because of the indication of the scorpion-like inflorescences, Linné used the name for this genus from the borage family. The inflorescences are like this throughout the genus: "[Genus] *Heliotropium* L....flowers generally in branched... scorpioid, terminal cymes".[44] However, in some species these are so shortened that the inflorescence looks like an umbel, at least no longer like a scorpion tail. These species are not in question here. Although this inflorescence is also frequently found in other genera of the Borrage family, a restriction to *Heliotropium* seems justified to me due to the combination of characteristics (inflorescence terminal, leaves similar to *ōkimon* (ὤκιμον) – *Ocimum basilicum* L. and white to slightly purple flowers. For plant-geographical reasons, all three proposed species come into question (Fig. 6).[45]

However, as Dioscorides describes the root as thin, *H. europaeum* with its thick taproot falls out. I have not found any information on the root of *H. hirsutissimum*. Such information

[43] Cf. the drawings in Fl. Ital. 3 (2018), 139, especially on *Heliotropium europaeum* L.

[44] R[obert] D. Meikle, *Flora of Cyprus*, vol. 2 (Kew: Royal Botanic Gardens, 1985), 1120.

[45] At least all species are described as native to the eastern Mediterranean region, which refers to a time well before the authors discussed here.

Fig. 5: a) Vindob. med. gr. 1, f. 291v (s. v. *skorpiouron*); b) Neap. ex-Vindob. 1, f. 81r; c) detail from a): scorpioid cymenes; d) *Heliotropium hirsutissimum* Grauer. Photo © Danin; e) Par. gr. 2179, f. 141r. Public Domain.

Dsc. IV 190	Distribution in Greece & Turkey	two or three small twigs that grow from the root	from them many axils	resembling those of basil	rougher	darker (μελάντερα Orib.E.: λευκότερα Rdi)	terminal	curling like a scorpion's tail;	white flower, slightly pruple	thin	grows in rough places		
Proposals		**Habit**		**Leaves**			**Inflorescence**			**Root**	**Hab.**	**Lit.**
Heliotropium europaeum		twigs not small				canescent			white, bluish, yellow throat	strong taproot	Roadsides, fields, wasteland	HEGI vol. 5 (1927), p. 2132, Fl. Turk. 6 (1978), p. 252; Fl. Ital. 3 (2018), p. 139
Heliotropium hirsutissimum		10-50 cm	stems much branched			dark green, but canescent			white with a yellow centre	?	fields waste ground	Fl. Turk. 6 (1978), p. 254; Fl. Cypr. p. 1123
Heliotropium supinum		7-40 cm				densely canescent			corolla white		wetlands, cultivated ground, field margins	HEGI 5 (1927), p. 2130, Fl. Cypr. p. 1123f.; Fl. Turk. 6 (1978), p. 255; Fl. Ital.3 (2018), p. 139

Fig. 6. Evaluation of the identifications for *hēliotropion to mega* (ἡλιοτρόπιον τὸ μέγα: Dsc., *MM* IV, 190. © M. Haars.

is usually not found in standard works such as Davis' *Flora of Turkey*. So here we can state that the identification as *H. hirsutissimum* is possible with reservation of the root. *H. supinum*, which Suzanne Amigues also draws here, has the wrong habitat;[46] it fits better with that of the small *heliotropium* of Dioscorides. Fraas also offers information here that can only be obtained by autopsy, for example on the nature of the fruits.

6. *Sēsamoeides to mikron* (σησαμοειδὲς τὸ μικρόν), Dsc., *MM* IV, 163 (II, 309 W.)

The text for our third example does not differ in Sprengel and Wellmann. The plant is described in detail: It has span-long stalks (*kaulia spithamiaia*, καυλία σπιθαμιαῖα), leaves similar to *korōnopous* (κορωνόπους), but rougher and smaller (*dasytera mentoi kai mikrotera*, δασύτερα μέντοι καὶ μικρότερα). At the apex of the stalk are heads of faintly purple flowers (*ep' akrou de tōn kauliōn kephalia antheōn hupoporphyrōn*, ἐπ' ἄκρου δὲ τῶν καυλίων κεφάλια ἀνθέων ὑποπορφύρων) and the centre of the flower is white (*hōn to meson leukon*, ὧν τὸ μέσον λευκόν), the seed sesame-like (*sperma sēsamō eoikos*, σπέρμα σησάμῳ ἐοικός), bitter, pale yellow (*pikron,*

[46] Dioscorides' statement "It grows in rough places (*en trachesi topois*, ἐν τραχέσι τόποις)" can of course mean many things. But it seems rather unlikely to me that it refers to wetlands.

Dsc. IV 163	Distribution in Greece & Turkey	span-long stems	similar to Plantago coronopus	rougher	smaller	terminal	in heads	flower slightly pruple	centre white	sesame-like	pale yellow	bitter	tender / thin	grows in rough places	
Proposals		**Habit**	**Leaves**			**Inflorescence**				**Fruits (Seeds)**			**Root**	**Hab.**	**Lit.**
Sprengel: *Reseda canescens* = *Caylusea hexagyna*	Only North Africa and Israel / Syria			(folia glabra)								?		inter rudera	Schimper (HBG508889) and Forsskål (C10002867), cf. Fl. Aegypt.-Arab. (1775), p. 92
Sprengel: *Reseda canescens* = *Sesamoides interrupta (?)*	Only Italy and westwards	5-15cm	with leaf rosette								dark brown with yellow bulge	?		stony ridges and rocks, but > 1200 / 1800 m!	Flora Iberica 4 (1993), p. 477, Euro+Meds. v., Fl. Ital. 2 (2017), p. 883, HBSI 4.2 p. 483sq.
Fraas: *Aubrieta deltoidea*	Throughout Greece, Turkey: W.Anat. Islands	8-20cm						petals purple	white / yellow	drawingin Fl. Ital.	(red / dark brown)	?		Rocks, 500-2100 m.	Fl. Turk. vol. 1 (1965), p. 441; Fl. Ital. vol. 2 (2017), p. 951; A. STRID /B. STRID vol. 7/8

Fig. 7. Evaluation of the identifications for *sēsamoeides to mikron* (σησαμοειδὲς τὸ μικρόν: Dsc., *MM* IV, 163). © M. Haars.

kirron, πικρόν, κιρρόν), the root tender (*rhiza leptē*, ῥίζα λεπτή), the herb grows in rough places (*en trachesi chōriois*, ἐν τραχέσι χωρίοις).

Fraas identified the herb in question as greek rockcress, *Aubrieta deltoidea* (L.) DC.,[47] which matches many characteristics given by Dioscorides (Fig. 7). He explicitly rejected Sprengel's identification as *Reseda canescens* L.[48] The systematics of this last sp. (Linné, *Syst. Nat.*, ed. 12, 2: 330. 1767?) is complicated. According to Euro+Med and herbarium specimens of "*Reseda canescens* L." collected in Egypt by Schimper (HBG508889) and Forsskål (C10002867) we are dealing here with *Caylusea hexagyna* (Forssk.) M.L. Green (syn. *Caylusea canescens* A. St.-Hil.). This is a north-African, Near-East sp. not native to Greece or Turkey. However, according to World Flora Online[49] *Reseda canescens* L. is considered as a synonym of *Sesamoides interrupta* (Boreau) G.López – a western mediterannean, mountaineous sp. (> 1200 / 1800 m!), native in some regions in Italy,[50] the Iberian Peninsula, France, esp. Corsica, Sardinia and the Pyrenees.[51]

Since Sprengel refers to an Egyptian and "Asia Minor" species, the first is certainly meant.

[47] "I think that this plant [*A. deltoides*] is much better suited than *Reseda canescens* according to Sprengel... Common on all dry mountains and rocks, from 500 to 3000 feet (Attica, Tripolitza)", Fraas, *Synopsis*, 118–119.

[48] Cf. Sprengel, *Dioscoridis*, vol. 2, 635.

[49] https://www.worldfloraonline.org (accessed December 11, 2023).

[50] Piemonte and Liguria, cf. Fabio Conti et al. (ed.), *An Annotated Checklist of the Italian Vascular Flora* (Roma: Palombi, 2005), 165 and Fl. Ital. 2 (2017), 883: 1200–2200m (!) with drawing.

[51] Santiago Castroviejo (ed.), *Flora Iberica. Plantas vasculares de la Peninsula Ibérica e Islas Baleares*, vol. 4 (Madrid: Real Jardín Botánico, 1993), 477.

Fig. 8. *Sēsamoeides to mikron* (σησαμοειδὲς τὸ μικρόν: Dsc., *MM* IV, 163). a) Vindob. med. gr. 1, f. 325v; b) Neap. ex-Vindob. 1, f. 160r; c) Pierpont Morgan Library MS M.652, f. 155v. Public Domain.

In fact, both species can be excluded: None is native to Turkey or Greece, moreover they differ significantly in morphology from the description in Dioscorides.

However, *Aubrieta* does not have pale yellow seeds, but dark ones that bear little resemblance to sesame. Furthermore, and more important, the flowers are not arranged in heads as Dioscorides describes. The illustrations also shows a kind of spike (Fig. 8). This may also be the reason, why a *Sesamoides* sp. was considered. Nevertheless, it seems remarkable that Fraas has made a proposal that André accepted "sans doute".

As was to be expected, the illustrated manuscripts are of no help here. Remarkable at best is the identification by Emmanuel[52] as *Astrocarpus sesamoides* (syn. *Sesamoides clusii* (Spreng.) Greuter & Burdet) – according to Euro+Med this is a western Mediterranean sp.

7. Cupressaceae – Dsc., *MM* I, 74–77

As a final example, we look at the nomenclature of the Cypress family in Dioscorides, which Fraas contributed to clearing up. Dioscorides deals with representatives of this family in chapters 74 to 77 of his first book. Since ancient botanists had neither a species concept in the

[52] Emmanuel, "Étude comparative", 70.

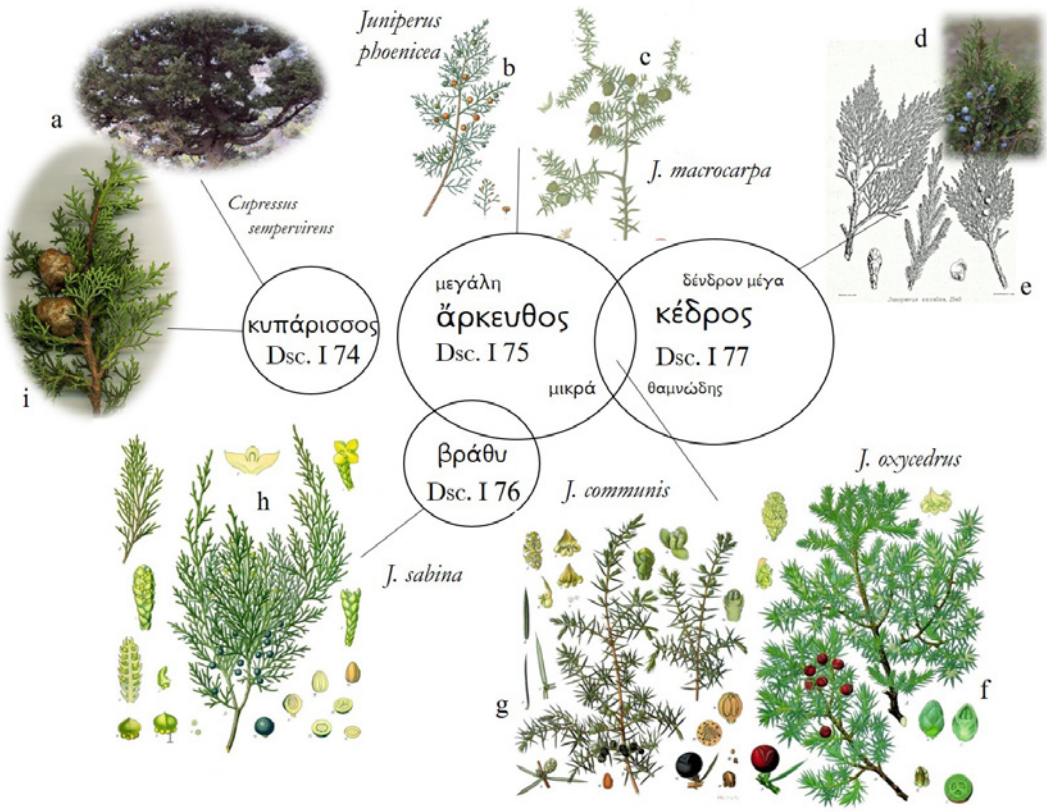

Fig. 9. Cupressaceae in Dsc., *MM* I 74–77. Photos a, d, e: © M. Haars; b, c, f–i: Public Domain.

modern sense, nor the instruments and – to a certain degree – the necessity to distinguish between e. g. *Juniperus communis*, *J. oxycedrus* and similar spp., the terminological distinctions are not quite sharp. In Fig. 9 this fuzziness is symbolized by the overlapping circles.

a. Kyparissos (κυπάρισσος), Dsc., MM *I, 74 (I, 73 W.)*

Nevertheless, there is little doubt about *kyparissos* (κυπάρισσος) that has long been identified as *Cupressus sempervirens* L.[53] – although this is not necessarily the avenue tree that characterises the landscape in Tuscany with its typical slender, columnar growth habit. The form *C.*

[53] Dioscorides offers no description of this tree, which is assumed to be known. However, there are abundant specifications in Thphr. and Plin., compiled by Franz Olck in his detailed RE article "Cypresse", in *Pauly's Real-Encyclopädie der classischen Altertumswissenschaft*, ed. Georg Wissowa et al. (Stuttgart: Metzler, 1893–1980), here vol. 4/2 (1901), col. 1909sq. The most important passages from Thphr. are all referred to *Cupressus sempervirens* L. by Amigues, *Théophraste. Recherches*, vol. 5, 306. Native to the eastern Mediterranean basin, it was apparently brought to Italy early as a cultivated tree, while the wild form var. *horizontalis* (Mill.) Gord. occurs in our area from Crete and eastwards above 300 up to 1200/1400 m, cf. Arne Strid, *Atlas of the Aegean Flora* (Berlin:

sempervirens var. *stricta* Aiton is the result of centuries of breeding and artificial cultivation since Roman times.[54]

Dioscorides I, 74 uses the fresh green cones (*chlōra sphairia*, χλωρὰ σφαιρία). Most of the uses listed, such as hemoptysis, dysentery, or external trauma, can be attributed to the astringent and cooling properties of the tannin-rich cypress cones. Dioscorides also uses the leaves (*ta phylla*, τὰ φύλλα) for other indications. All this information fits well with cypress – both in terms of its later use in folk medicine and pharmacies, as well as in terms of its effective ingredients.[55]

Then follow in chapters 75–77 species of the genus *Juniperus*: *arkeuthos*, *brathy* and *kedros* (ἄρκευθος, βράθυ and κέδρος).

b. Brathy (βράθυ), Dsc., MM *I, 76 (I, 75 W.)*

Both kinds of *brathy* in Dioscorides are defined by all authorities as the sade tree, *Juniperus sabina* L. (with its varieties or closely related spp.),[56] to be distinguished from other *Juniperus* spp. because of its toxicity and smell. This identification is also possible for the figures in the illustrated manuscripts.[57] However, there are obviously problems of distinction to *J. foetidissima* Willd.[58]

Furthermore, some final doubts remain, since Dioscorides speaks of a tree (although grown more in width, *to dendron eis platos mallon ekcheomenon*/τὸ δένδρον εἰς πλάτος μᾶλλον ἐκχεόμενον), while *J. sabina* grows mostly as a shrub.[59] One should therefore not exclude similar spp. like the before mentionned, up to 10m growing *J. foetidissima* L. (for Greece and Turkey).

c. Arkeuthos megalē (ἄρκευθος μεγάλη), Dsc., MM *I, 75 (I, 74 W.)*

Dioscorides distinguishes a large cypress-like tree with fruits the size of a hazelnut (*a. megalē*, ἀ. Μεγάλη) and a small one with sweet-bitter bean-sized berries (*a. mikra*, ἀ. Μικρά). Fraas identified the large *arkeuthos* as *J. phoenicea* L. and the small one as *J. oxycedrus* L.

BGBM, 2016), vol. 2, map 55 and Id. (ed.), *Mountain flora of Greece*, 2 vol. (Cambridge: Cambridge University Press 1986–1991), here vol. 1, 45; see also HEGI 1.2 (1981), 107; Fl. Turk. 1 (1965), 76 and Fl. ital. 1 (2017), 84.

[54] Fl. Ital. 1 (2017), 84: "In epoca certo antichissima, forse già dagli Etruschi".

[55] Cf. Schneider, *Lexikon zur Arzneimittelgeschichte*, vol. 5/1 (1974), 400–401 and Karl Hiller and Matthias F. Melzig, *Lexikon der Arzneipflanzen und Drogen* (Heidelberg: Spektrum, 2010), 173 and Wolfgang Blaschek et al. (ed.), *Hagers Enzyklopädie der Arzneistoffe und Drogen* (Stuttgart: Springer 2007), vol. 5, 430–431.

[56] Dsc. *MM* I, 76 distinguishes two kinds of the sade tree, which can be related to *J. sabina* var. *tamariscifolia* Aiton and *J. cupressifolia* Antoine ex K. Koch., cf. Sprengel, *Dioscoridis*, vol. 2, 386; Fraas, *Synopsis*, 259–260 and Blaschek et al., *Hagers Enzyklopädie*, vol. 9, 222. In current taxonomy, they are considered as syn. to the more formal *J. sabina*, cf. WorldFlora (s. v), https://www.worldfloraonline.org (accessed December 11, 2023).

[57] The illustrations in Cod. M.652, f. 19r and f. 244v (Morgan Lib. note: "J. sabina"); Cod. Vindob. med. gr. 1, f. 84r and Cod. Neap. ex-Vindob. med. gr. 1, f. 30r show a shrub which can well be compared with *J. sabina*. I even have the impression that in M (19r) the brachyblasts are represented, cf. the drawing in HEGI 1.2 (1981: 118). I cannot follow the suggestion of Emmanuel, "Étude comparative", 64: Tamarix [gallica?]), because inter alia the inflorescences are quite different.

[58] Fl. Turk. 1 (1965), 82f.

[59] Cf. Fl. Ital. 1 (2017), 89; Mount. fl. Gr. 1 (1989), 49; HEGI 1.2 (1981), 116–120 and Fl. Turk. 1 (1965), 82.

Is it that simple? Unfortunately, not. The problem here is that Fraas relies on the text of the interpolated Dioscurides. The information on the habitat in rough areas and near the sea (*en trachesi kai parathalassiois topois,* ἐν τραχέσι καὶ παραθαλασσίοις τόποις) and the comparison with the cypress (*empherēs kyparissō*, ἐμφερὴς κυπαρίσσῳ) are Pseudo-Dioscorides and additionally in brackets in Wellmann's edition. It is of course still possible that Dioscorides would also have agreed with these later scholia – but here we are in the realm of speculation. Since without this information, one would at least also have to consider *J. macrocarpa* Sm.

d. Kedros dendron mega (κέδρος δένδρον μέγα), Dsc. MM *I, 77*

We are now concerned with the large *kedros*, from which, according to Dioscorides the *kedria* originates (*ex hou he legomenē kedria synagetai*, ἐξ οὗ ἡ λεγομένη κεδρία συνάγεται). This is a famous tree resin that was also used by the Egyptians to preserve mummies. According to Dioscorides its fruit is much smaller than that of the cypress (*hōsper kyparissos, mikroteron mentoi para poly*, ὥσπερ κυπάρισσος, μικρότερον μέντοι παρὰ πολύ).[60]

Fraas is the first[61] to identify the large *kedros* as *Juniperus excelsa* M. Bieb. and all authorities follow him.[62] This is the most common tree-like juniper in the relevant area.[63] Other common species do not reach this height. Therefore, the identification with Dioscorides' large tree seems justified to me. Its fruits are admittedly smaller than those of the cypress, but not necessarily much smaller. Highly interesting are Fraas remarks on the resin, which he found especially in *J. phoenicea*, but less so in *J. excelsa*: "As for the kedria, I found – 1) almost pure

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[60] The ripe female cones of *Cupressus sempervirens* measure 2–4 cm, cf. Fl. Ital. 1 (2017) 84. In Plin., *HN* XIII, 53, however, the seed is meant (*semen eius cupresso simile* – if not semen is here also to be understood as a cone).

[61] Sprengel, *Dioscoridis*, vol. 2, 386–387: *J. phoenicea* s. l. This is a rather small tree of max. 4m (in rare cases up to 8m), the fruits measure up to 15 mm, cf. Fl. Ital. 1 (2017), 88. It is common in Italy and Greece, but occurs in Turkey only on some islands, see the map in Fl. Turk. 1 (1965), 81. E-med.-material belongs probably to *J. turbinata* Guss, cf. Atlas Aeg. Fl. 1 (2016), 24.

[62] *Juniperus excelsa* is a tree up to 20 m high with cones 7–10 mm in size, which is widespread in the E-Mediterranean region. Its occurrence in central and N-Greece is well documented according to Panayotis Dimopoulos et al. (ed.), *Vascular Plants of Greece. An annotated checklist* (Berlin/Athen: BGBM, 2013), 42. In Turkey it is one of the most widespread *Juniperus* spp., cf. Fl. Turk. 1 (1965), 83. Completely unjustly Fraas was reprimanded for this suggestion by Karl Koch, *Die Bäume und Sträucher des alten Griechenlands* (Stuttgart: Enke, 1879), 40f. who wanted to exclude this sp. for Greece. Fraas' identification was accepted in LSJ s.v. κ.; André, *Noms de plantes*, 54 and by Amigues, *Théophraste. Recherches*, vol. 2, 164.

[63] The highest-growing *Juniperus drupacea* Labill. will not be excluded here, although it has only been recorded in very few places in the relevant area today, cf. Fl. Turk. 1 (1965), 19: "Above 1000 or 1200 m... the Mediterranean region is largely dominated by conifers... native *Cupressus sempervirens* (s. Map 11) and *Juniperus drupacea* (s. Map 12 [p. 77]) are confined to the mountains of South Anatolia; *Juniperus excelsa* (s. Map 17) often forms the tree-line." (Map 12 [p. 77]). Dioscorides does not name a place of growth, but Plin., *HN* XIII, 53 states that the timber of the large cedar comes from (Cilician) Seleukeia, among other places. See on this important species in the ancient Near East Marie-Françoise Besnier et al., "On the Junipers of Ugarit, Part 1: The Word Diprānu and Its Wanderings", in *Scribes et érudits dans l'orbite de Babylone*, ed. Carole Roche-Hawley and Robert Hawley (Paris: De Boccard, 2012), 201–259, esp. 212sq.

gum on *Juniperus oxycedrus* and *macrocarpa* on the Taygetos, covering the whole tree and branches almost completely, it seemed to be a pathological product, as is also often observed on *Juniperus communis* when it is very wet. – 2) More resin-like, pleasant-smelling and similar to sandarach on *Juniperus phoenicea* in Vattica, from Monembasia to Argos, but only on individual specimens. This is the *kedria* of the ancients; – 3) also of this kind, but only rarely on *J. excelsa*".

Fig. 10. Resin excretion on *Cedrus libani*. Photos taken on Cyprus, © M. Haars.

These are valuable observations, even if they only relate to a few individuals.

Finally, it should be pointed out that *kedros* was often identified with *Cedrus libani* A.Rich., the true cedar of Lebanon, perhaps also in the New York manuscript.[64] Of the cedar the resin is used pharmaceutically, too.[65] This tree forms still today large populations in Turkey. I have tried the resin from a cedar in Cyprus. It is somewhat aromatic and I have no doubt, that it was used pharmaceutically in ancient times (Fig. 10).

8. Conclusions

What can the examples presented teach us? First of all, I think that we should not ignore the authors of the 19th century or dismiss them as "uncritical". To a large extent, we owe our current level of knowledge to them, or, to put it another way, we are still working off them. Especially in the days when ancient studies were still regarded as the leading disciplines, there were many clever and hard-working minds at work – with a workload on the subject itself that few people can comprehend today. To a certain extent, this also applies to Fraas, as he in many cases – only four could be mentioned here – laid the foundations for our current understanding of Greek plant names. This is reflected in the more recent works (LSJ, André, Amigues).

[64] Pierpont Morgan Library MS M.652, f. 251v (Morgan Lib. note: "Juniperus"), available online: https://www.themorgan.org/collection/de-materia-medica/143825/504 (accessed December 12, 2023). At least, these are not the fruits of *Juniper* species. It would also come as no surprise that this cedar, which is still widespread in southern Turkey today, is depicted in the manuscript originating in Asia Minor.

[65] Geiger reports around 1830: "The fragrant cedar wood (lign. Cedri) was once officinal; the fragrant resin (resina, gummi Cedri) flowing from the trunk, which is similar to mastic, and the pleasantly resinous-smelling and sweet-tasting seeds (sem. Cedri) were also in common use. – From the leaves oozes a kind of manna (Manna Cedrina), which has been used as a medicine since ancient times", quoted after Schneider, *Lexikon zur Arzneimittelgeschichte*, vol. 5/1 (1974), 256. In the 20th century the essential oil of the wood was used in pharmaceutical products as an aromatic, cf. Blaschek et al., *Hagers Enzyklopädie*, 3, 1025–1026.

On the other hand, there are also suggestions by Fraas that are correct and appear neither in André nor in LSJ – this may be another reason to critically consult the older literature without over-relying solely on the newer one.

And perhaps the most important aspect with regard to Fraas: botanical autopsy is a precondition for plant identification. For Dioscurides makes many statements which we cannot check in all cases with the help of botanical (e.g. Davis' Fl. Turk.) or pharmaceutical (e.g. Hagers Enzyklopädie) reference works or herbarium specimens.

Aditionally, Fraas has observations from a pre-industrial time in Greece. Natural habitats are unfortunately disappearing more and more in Greece and the chances of finding untouched nature, as was the case at the turn of the 19th century, are dwindling in the Mediterranean region.

However, this literature such as Fraas must not be used uncritically: We must be clear beforehand: What is the textual basis of Fraas? And: How reliable is the identification?

One aspect that was perhaps less developed in the 19th century was cooperation between scholars from different disciplines. The title of this paper is also an allusion to the lone wolf approach of a mountaineer (Heinrich Harrer) during his seven years in Tibet. To get higher and further requires a rope team of specialists who can rely on each other as a research group.

The Study of Plants in Mesopotamian Scholarship

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/ Abstract

Although plants are ubiquitous in our records from antiquity, our understanding of them is often curbed by uncertainty. This is especially true in the case of Assyro-Babylonian plants, and consequently, of all the fields of study that heavily depend on a correct interpretation of their names. This paper presents a quick overview of the study on plants in ancient Mesopotamia. Providing some brief examples from the history of the discipline, it explains how the study of ancient Mesopotamian plants has been approached from the early days of Assyriology until today. It also introduces the principal sources of information that have been available to scholars, while examining the major problems involved in the work, explaining their implications, and offering some new questions, or potential directions for future study.

Sebbene le piante siano onnipresenti nella documentazione antica, la nostra comprensione di esse è spesso limitata. Ciò è particolarmente vero nel caso delle piante assiro-babilonesi e, di conseguenza, di tutti i campi di studio che dipendono strettamente da una corretta interpretazione dei loro nomi. Questo articolo offre una rapida panoramica dello studio delle piante nell'antica Mesopotamia: fornendo alcuni brevi esempi, tratti dalla storia della disciplina, spiega come sia stato affrontato sin dai primordi dell'assiriologia, ed introduce le principali fonti di informazione disponibili agli studiosi. Al contempo esamina alcuni dei maggiori problemi legati a questo tema di ricerca, spiegandone le implicazioni e indicando potenziali direzioni per studi futuri.

/ Keywords

Plants in Mesopotamia; Ancient plants; Ancient botany; Cuneiform plants.

1. Introduction

Plants touch on pretty much every aspect of life, and their study necessarily reflects many different kinds of expertise. Rather than a comprehensive examination of the subject, this paper is therefore intended as an occasion to begin exploring how the study of ancient Mesopotamian plants is developing, and to do it by means of tailored examples. It introduces the main categories of evidence available from Mesopotamia, highlighting the main problems inherent their study, and how scholars went about trying to solve them. Some of the methods employed today to work with the material are thus described, while reflecting upon potential ways to (partially) overcome the complications posed by the nature of the evidence.

2. Earliest recording and classification of plants

Over several millennia of history, many different peoples lived in the lands of Mesopotamia, speaking several different languages, and especially leaving behind an incredible quantity of archaeological remains, and of cuneiform tablets – roughly half a million of them – both of which carry large amounts of information in regards to plants. While a full system of writing was in place already in the mid-fourth millennium, most of the texts that inform our interest on plants in Mesopotamia are dated from the last two millennia BCE. In these textual sources, mentions of plants are ubiquitous. Even before their name was spelled out in ways that reflected the sounds of the language, some of these plants occurred in pictographic shape in the earliest administrative documents ever recorded, dated to the early fourth millennium BCE.

Fig. 1. MS 3147/2 (P252157). Administrative tablet dated to the Uruk V period (ca. 3500–3350 BC), showing an early sign ŠE (for barley, or crops). The Cuneiform Digital Library Initiative (CDLI). December 15, 2004. https://cdli.ucla.edu/P252157. Tablet kept in the Schøyen Collection, Oslo, Norway. Image © Martin Schøyen and the Schøyen Collection.

Over time the textual sources became more specific, and scribes began to assign classifiers to general names of plants (Ú: Fig. 2), trees (GIŠ), aromatic plants (ŠIM), garden plants (SAR), crops (ŠE: Fig. 1), and reeds (GI), so that when people picked up a tablet they knew immediately whether the word they were reading referred to the name of a generic plant (Ú), or else.

Now classified in such manner, various

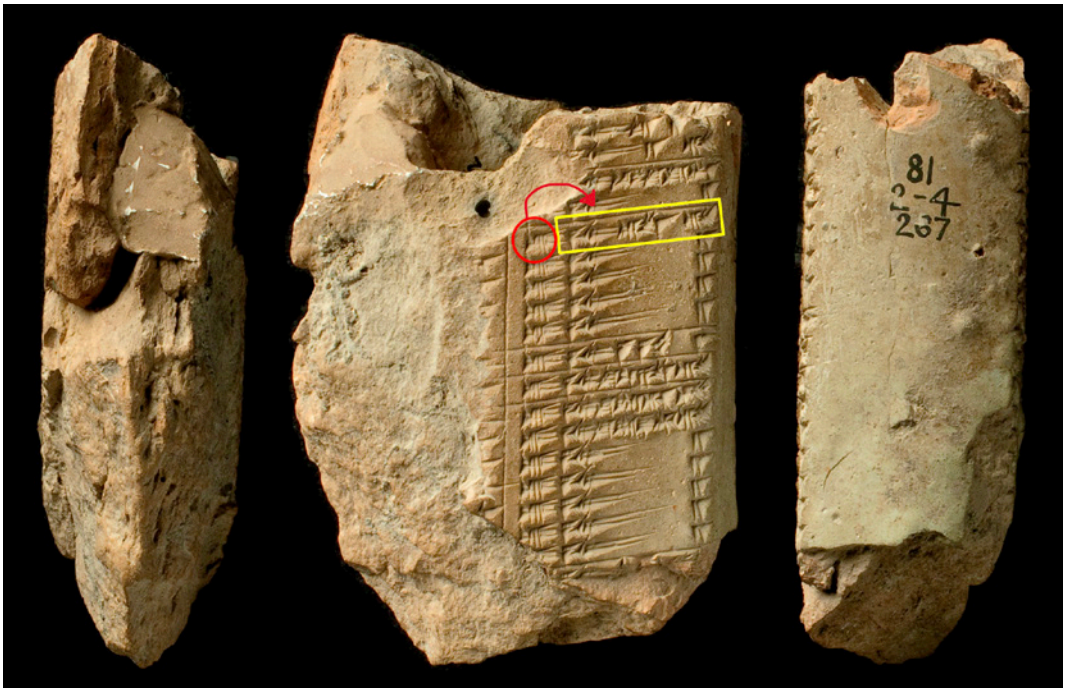

Fig. 2. Example of a lexical list displaying names of plants introduced by the classifier Ú (K 20572). © The Trustees of the British Museum. The original image was slightly modified by the Author to highlight the elements described in the discussion.

categories of objects, including plants, were then collected in long lexical lists, as part of an effort to learn and teach about the world. Since they were most often organized in the form of bilingual dictionaries or as lists of equivalent substances, such lists are extremely useful to modern scholars who want to gain a sense of the extent of the material. For example, in the pharmacological list known as Uruanna, which was compiled in the 7th c. BCE from sources going back several centuries and served as a dictionary of medicinal plants, one may find approximately 1300 different names of drugs of vegetable origin. This surprisingly high number is partially to be explained by the fact that the list included synonyms and equivalent names in foreign languages. And yet, even excluding similar and/or equivalent substances, the remaining names reveal a pharmacopeia of hundreds of different plants, in the range of at least 400.[1]

[1] Barbara Böck, "Sourcing, Organizing, and Administering Medicinal Ingredients", in *The Oxford Handbook of Cuneiform Culture*, ed. Karen Radner and Eleanor Robson (Oxford: Oxford University Press, 2011), 690–705. In regard to this last point, I would note that a pharmacopoeia in the range of a few hundred plants seems roughly equivalent to the numbers we derive from classical authors, i.e. from Theophrastus in the classical period, and especially, later on, from Dioscorides' *De Materia Medica* (1st c. CE), which counts "well over 600 items". See Lily Y. Beck (ed.), *Pedanius Dioscorides of Anazarbus: De Materia Medica* (Hildesheim: Olms, 2011), XVIII.

3. Types of sources

Such names occur in various areas of Mesopotamian scholarship, in specialist lists, as just mentioned, but also in works that describe their physical appearance, as in the earliest herbal we have from history, known by its incipit "*šammu šikinšu*".[2] As expected, they play a major role in the thousands of recipes from the medical corpus (an estimate has counted some 5000 of such recipes, thus far),[3] and in handbooks that point to their medicinal properties, but their use was recorded in non-medical works as well. A smaller group of aromatic and oil-producing plants, for instance, is mentioned in texts describing procedures for the making of perfumes,[4] while vegetables, spices and ordinary plants also figured in cookbooks, which preserved several elaborate recipes for the preparation of gastronomic dishes.[5]

All these sources contain a wealth of information, from the native names of plants, their use, function, or assumed properties, *some* of their morphological features, or appearance, and again, their number (from roughly 350 to about 1300, as far as we know). When one attempts to *make sense* of this type of information, however, one meets major obstacles.

I will come back to this point below, but first I will introduce a second set of data we have at disposal, that is archaeological remains. Ever since the first archaeological excavations began to explore the ancient sites of the region in the mid-1800s, residues of ancient plants, seeds, fibers, and even impressions on clay, have emerged from the soil. These past few decades have seen an increasingly more accurate and extensive effort to collect, analyze and systematize paleo-botanical residues, divided by geographical areas and time periods, in the hope to create a repertoire of plant species.[6] These repertoires are important because of

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[2] For an edition of this text, see Henry Stadhouders, "The pharmacopoeial handbook *Šammu šikinšu* – An edition", *Le Journal des Médecines Cunéiformes* 18 (2011): 3–51, and "The pharmacopoeial handbook *Šammu šikinšu* – A translation", *Le Journal des Médecines Cunéiformes* 19 (2012): 1–21. Also cf. Maddalena Rumor, "At the Dawn of Plant Taxonomy: Shared Structural Design of Herbal Descriptions in *Šammu šikinšu* and Theophrastus' *Historia plantarum* IX", in *Magic and Medicine in Mesopotamia: Studies in Honor of Markham J. Geller*, ed. Strahil V. Panayotov and Luděk Vacín (Leiden/Boston: Brill, 2018), 446–461 on the relationship between this work and other works in history considered "herbals".

[3] Cf. Böck, "Sourcing, Organizing", 690.

[4] For the first edition of these texts, see Erich Ebeling, "Mittleassyrische Rezepte zur Herstellung von wohlreichenden Salben", *Orientalia* 17 (1948): 129–145 and 299–313. For a more recent translation, also see: Eduardo A. Escobar, "Tappūtī-Bēlat-Ekalle: A Cuneiform Tablet on Middle Assyrian Perfumery (C. 1200 BCE)" in *Women in the History of Science: A Sourcebook*, ed. Hannah Wills, et al. (London: UCL Press, 2023), 15–22.

[5] The gastronomic recipes have been studied in detail by Jean Bottéro, who discussed them in several publications, particularly in his *Textes culinaires Mésopotamiens*, vol. "Mesopotamian Civilizations" (University Park, PA: Eisenbrauns, 1995). For an introduction to the topic, also see Jean Bottéro, *The Oldest Cuisine in the World: Cooking in Mesopotamia* (Chicago: The University of Chicago Press, 2004).

[6] See Luca Peyronel, Agnese Vacca and Claudia Wachter-Sarkady, "Food and Drink preparation at Ebla, Syria. New data from the Royal Palace G (c. 2400–2300 BC)", *Food & History* 12 (2014): 36–38. For a list of plants present in Mesopotamian archaeological sites also cf. Anne-Isabelle Langlois, "Quelque plantes présentes en Mésopotamie", *Le Journal des Médecines Cunéiformes* 18 (2011): 52–76.

the data they can offer, such as the identification of species present in a specific area, or at a specific point in time, but they can be used productively to assist textual research as well. A list of botanical remains that were found in archaeological excavations from Syria and Iraq (and were originally published in many scattered archaeological reports) has recently been prepared by Isabelle Langlois (2011). An example of how such a list can be employed will be given below. Yet, paleo-botanical residues offer no indication of their ancient names, with the result that nearly any single one of them could have been known in antiquity by any of the names we read in the texts.

A correlation of the two sets of data, archaeological and textual, would be an invaluable tool, as it would allow us to connect plant species with their ancient names. Unfortunately scholarship is still a long way from being able to do so, and this is the crucial problem affecting all disciplines studying Mesopotamian plants, directly or indirectly.

Of the few names of plants that have so far been identified reliably, most are cultivated food crops.[7] Because of their frequent and continuous use, such names often survive as cognates, although this is not the only reason why they are more easily identified; their interpretation is also facilitated by the textual context in which they occur (generally in gastronomical recipes, or administrative records). The great majority of all other names, that is those of plants that were *not* used as foodstuff or spices, is still for the most part inscrutable, as exemplified by the following medical text where unidentified plant names are left in the original language, and names of uncertain identification are marked with a (?) in superscript: "If a man has been seized by *ra'šānu* (and) his head, his face, his lips are swollen, to cure him pulverize *kukuru*, juniper$^{(?)}$, *atā'išu*, [...], *kammantu*, roast *saḫlû*, roast *kasû*, flour of parched corn, *nikiptu*; these 9 ingredients, together, knead in *kasû*-water, shave the head, anoint thoroughly with old butter, bandage onto him, and he will recover" (*BAM* 3 i 26).

Since so many of these plant names lack a translation, it is difficult to assess the exact purpose of most medical remedies, left alone their effectiveness; the criteria followed by plant lists are likewise obscure; descriptions of royal gardens also cannot be properly appreciated; our interpretation of herbals remains limited; technical recipes for the creation of perfumes are most arduous to re-create, and so on and so forth: every analysis of cuneiform texts mentioning plants, trees, bushes, and aromatic substances, is bound to stumble on the same obstacle, which is unlikely to be overcome by focusing exclusively on Mesopotamian culture, or exclusively through philological methods.

A third set of data should also be mentioned. In the late 19th century several botanical

[7] See, for instance, the various contributions published in the *Bulletin on Sumerian Agriculture* (*BullSA*) in 1985 (on legumes and oil-seed crops) and 1987 (some common vegetable and fruit terms). Further discussion on these terms often continued through the years, as, for example, in the case of sesame. See Hervé Reculeau, "Le point sur la 'plant à huile' : réflexions sur la culture du sésame en Syrie-Mésopotamie à l'âge du Bronze", *Journal des Médecines Cunéiformes* 13 (2009): 13–27.

publications appeared in Europe on the flora of the Near East.[8] Their publication prompted further interest in the traditional *medical* use of those plants, to the point that in the 1930s, a number of anthropological expeditions, such as the ones of Dr. Cowan and Dr. Darlington in 1929, of Captain Johnston-Saint in 1933 and of Henry Field in 1937,[9] were organized with the intent to study and preserve the folk medical knowledge of the region. These expeditions not only collected specimens of native plants from the bazaars, the gardens and fields of Syria, Iraq, Iran and surrounding areas, but also recorded their vernacular names, and especially traditional knowledge regarding their properties, and use. In so doing, they attempted to connect all three areas needed for a better understanding of the Babylonian material, that is a) nomenclature, b) use, and c) identified plant species (with their scientific, Linnaean name), and yet the information they collected cannot solve the problems described above in one simple step, mainly due to the fact that such expeditions were carried out two millennia after the demise of Babylonian language and civilization. As much as traditional knowledge can endure the centuries (and millennia sometimes), during those two millennia the region went through extensive influence from non-local medical systems – the Greek one in particular – and thus, when reconstructing pre-Greek information about ancient Mesopotamian plants, these studies should be used with caution.

4. (Short) history of the discipline and main problems

Well aware of all this, early Assyriologists realized that making sense of the native botanical nomenclature was essential: without first understanding what those hundreds of names meant, very little could be done to shed light onto important aspects about the ancient traditional society they were studying, such as a) the rationale with which plants were used, prescribed, organized, classified, valued – in any domain; b) the reconstruction of their provenance, and possibility of trade; c) the question of interrelations and interconnections of Babylonian knowledge in its historical and cultural contexts.[10]

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[8] See, for example: Johann L. Schlimmer, *Terminologie Médico-Pharmaceutique et Anthropologique Française-Persane* (Theheran: Lithographie d'Ali Gouli Khan, 1874); James E.T. Aitchison, *Notes on the Products of Western Afghanistan and of North-Eastern Persia*, Edinburg: Neill & Co, 1890); Rev G.E. Post, *Flora of Syria, Palestine and Sinai* (Beirut, Syria: Syrian Protestant College, 1896); Bernard Gilliat-Smith and William Bertram Turril, "On the Flora of the Nearer East: a Contribution to Our Knowledge of the Flora of Azerbaidjan, North Persia", *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)* 7 (1930): 273–312.

[9] David Hooper and Henry Field, *Useful Plants and Drugs of Iran and Iraq*, vol. 9/3 (Chicago: Field Museum of Natural History, 1937).

[10] For example, any sharing of knowledge and practices with other surrounding peoples, such as the Egyptians, the Greeks and the Romans. I have worked for some time on this specific question, focusing on the comparative analysis of combination of ingredients, but I found myself having to restrict my investigation to animal-based ingredients and *Dreckapotheke* (filthy medicaments), for the simple reason that those names do have a (literal) translation, and thus their attestations can be compared; but again, there are many other related questions that

About a century ago, numerous identifications were proposed by Reginald Campbell Thompson, in his *Assyrian Herbal* (1924),[11] in the *Dictionary of Assyrian Botany*, published 25 years later (1949), and in his many translations of cuneiform medical texts. At a very early stage in Assyriology, Thompson put together a wealth of information, benefiting from his knowledge of Semitic languages, as well as of plant-use in folk medicine from northern Iraq where he had excavated for several years. His work was pioneer, yet very erudite for the time, and it had the merit to bring further interest to the matter. A number of his identifications, however, depended on dubious etymologies, which were then taken for granted, without further enquiry, for several decades.

One example will suffice to render the idea: one of the most common names of plants in the Babylonian medical corpus is *lišān kalbi*, literally "dog's tongue". On the basis of the expression's literal meaning (which probably reflects the appearance of the leaves of the plant), and especially based on the apparent cognate in Arabic *lisān al-kalb*, which can represent both *Cynoglossum* and *Plantago* (plantain), Thompson concluded that *lišān kalbi* probably referred to *Cynoglossum*, also meaning (in Greek) "dog's tongue".[12] The suggestion presented two problems: first, *cynoglossum officinale* is *not* native of Mesopotamia, *nor* – according to Isabelle Langlois' list (2011) – is it present among the botanical remains found in archaeological excavations from Syria and Iraq. And yet, *lišān kalbi* is all-present in the medical texts, which seems to indicate that it was a very common medicinal plant in Mesopotamia. The second problem is that even though the Arabic language can be used to better understand Akkadian, Arabic *pharmacology*, because of its history, includes numerous calques from Greek. It is therefore plausible that Arabic *lisān al-kalb* may derive from Greek, especially when we keep in mind that Greek κυνόγλωσσον was a native plant in Greece. Additional examples could be produced from the *Dictionary of Assyrian Botany* that are just as problematic.

Not all, however, is as bleak as it appears from the picture sketched above. A small number of early identifications – proposed not only by Thompson, but also by other scholars – seem convincing and have become widely accepted. For instance, the identification of *bīnu* as tamarisk, mostly based on the etymology of Aramaic and Syriac *bīnā*-tamarisk,[13] is fairly

would be interesting and important to ask, and yet their answers are contingent on the identification of plant names.

[11] Reginald Campbell Thompson, *The Assyrian Herbal* (London: Luzac and co., 1924).

[12] Reginald Campbell Thompson, *A Dictionary of Assyrian Botany* (London: The British Academy, 1949), 23–27.

[13] Heinrich Zimmern, *Akkadische Fremdwörter als Beweis für babylonischen Kultureinfluß* (Leipzig: publisher, 1915), 53; Michael P. Streck, "Dattelpalme und Tamariske in Mesopotamien nach dem akkadischen Streitgespräch", *Zeitschrift für Assyriologie* 94 (2004): 251–252. According to Igor Mikhailovich Diakonoff, "Die Arier im Vorderen Orient: Ende eines Mythos", *Orientalia Nova Serie* 41 (1972): 100 n. 41, *bīnu* could have entered Akkadian as a loan-word from Hurrian *paine* (apud Strahil V. Panayotov, "Magico-medical Plants and Incantations on Assyrian House Amulets", in *Sources of Evil: Studies in Mesopotamian Exorcistic Lore*, ed. Greta Van Buylaere et al. (Leiden/Boston: Brill, 2018), 207.

established, even though it is still unclear which species of tamarisk the name refers to, as many are the varieties of tamarisk present in Iraq. Even when a general understanding of the terminology is reached, it often lacks precision.

Despite these early and appreciable attempts, botanical knowledge about Mesopotamian plants progressed slowly over the decades. Starting in the 1950s, Assyriologists focused on editing the lists of plants, identifying, reconstructing, copying and joining hundreds of fragments scattered across many different museums (before even publishing any work on their transliteration and translation). Several scholars, from James Kinnier Wilson in the 1950s, to Franz Köcher between the 1950s and 1990s,[14] to recent[15] and future projects aiming at issuing the full edition of plant lists,[16] have spent countless hours in trying to reconstruct a reliable picture of the original texts, an effort that will hopefully soon bring some light to the matter.

5. Approaching the study of Mesopotamian plants: Some examples

At present, different methods have been adopted in order to begin addressing the difficulties involved in the study of plants in Mesopotamia. Some of these methods will be illustrated below separately, even though they generally tend to be used in combination.

When one first attempts to identify Babylonian botanical terminology, the initial approach is naturally comparative. Just as Thompson did, one first explores whether loan-words in the names of plants can be recognized in other similar idioms, in Semitic or non-Semitic languages. As shown earlier, loanwords are not always unquestionable, or their transmission as simple as it may appear, yet their study is interesting and necessary, and especially their

[14] Franz Köcher, *Keilschrifttexte zur assyrisch-babylonischen Drogen und Pflanzenkunde* (Berlin: Akademie-Verlag, 1955); Id., *Ein text medizinischen Inhalts aus dem neubabylonischen Grab*, vol. 10, in *Uruk: Die Gräber. Ausgrabungen in Uruk-Warka*, ed. Rainer M. Boehmer, Friedhelm Pedde and Beate Salje (Mainz am Rhein: Philipp von Zabern in Herder, 1995), 203–217.

[15] Annie Attia-Buisson and Gilles Buisson, "*BAM* 1 et consorts en transcription", *Le Journal des Médecines Cunéiformes* 19 (2012), 22–51; Henry Stadhouders, "The Pharmacopoeial Handbook Šammu šikinšu: An Edition", *Le Journal des Médecines Cunéiformes* 18 (2011): 3–51; Id., "The Pharmacopoeial Handbook Šammu šikinšu: A Translation", *Le Journal des Médicines Cunéiformes* 19 (2012): 1–21; Jan Tavernier, "KADP 36: Inventory, Plant List, or Lexical Exercise", in *Proceedings of the 51st Rencontre Assyriologique Internationale*, ed. Robert D. Biggs, Jennie Myers and Martha T. Roth (Chicago: The Oriental Institute, 2008), 191–202; Franziska Desch, *Die mittelassyrische 'Dreckapotheke': Ihr Gebrauch in der Pflanzenliste KADP 1* (Master diss., Freie Universität Berlin, 2013); Barbara Böck, Shahina A. Ghazanfar S.A. and Mark Nesbitt, *An Ancient Mesopotamian Herbal* (Kew: Royal Botanic Gardens, 2024).

[16] A recent ERC project ("Floriental. From Babylon to Baghdad: Toward a History of the Herbal", 2011–2017) has supported work on the edition of the pharmaceutical lists URU.AN.NA and MÚD-UR.MAḪ, of which the manuscript copies are now available (Jeanette C. Fincke, *An Ancient Mesopotamian Herbal Handbook: The Series uru.an.na and mú-ur.maḫ*, vol. 1: *The Tablets* (Leuven/Paris/Bristol: Peeters, 2021). The entire edition will be published by Jo-Ann Scurlock.

identification is important when other common elements are also present, such as the physical descriptions of a plant, the procedures with which it was handled, or applied, or the qualities it was known for (its medicinal properties, its usefulness in the production of glass, or else), ultimately confirming the identification. Even though the details might be partial or fragmentary, some level of information about all three categories is generally available. Morphological descriptions of plants, for example, can sometimes be derived from the Mesopotamian Herbal *Šammu šikinšu*, but they may also be found scattered in random passages. The procedures with which plants were handled, or administered, abound in the technical literature, and even though the instructions preserved in such procedural texts are often too generic to be of much help (e.g. to "pound" a substance hardly suggests any information as to the specific nature of what may be pounded), they occasionally do provide specific clues that allow at least the *exclusion* of some options. And finally, it is also possible to determine what qualities or properties a plant was known for from the purposes it was used for, and from the technical context in which it was mentioned (medical, gastronomical, perfume, glassmaking, dying procedures).

Anti-witchcraft recipes, for instance, often used a recurring combination of the same four to five ingredients *tarmuš*, *maštakal*, *sikillu*, *imḫur līm*, *imḫur ešrā*, which were specifically known to be effective against that affliction. At least one of them (*maštakal*) appears to have been a type of soapwort (*Saponaria officinalis*) – although one must keep in mind that this specific identification is not certain, and has been challenged.[17] Another plant in the set (*sikillu*) seems to have had purging properties and was called "pure" (or "purifying"). Once we recognize that, in the context, these plants were employed for the purposes of cleansing, or expelling "pollution," we can then expect the other ones in the group, the ones that have *not* been identified, to also share similar properties.

Indirectly, also medical recipes carry important clues about the special qualities of their ingredients, since they regularly describe the symptoms they are meant to treat. Their tendency, however, to occur as compound medicaments (i.e. listing several different symptoms and several different plant-ingredients) makes it extremely difficult to discern what substance was actually doing what.

A less intuitive method, and less commonly employed because of the rarity of the evidence,

[17] *Mrkt* in Gittin 69b refers to *martakal*, one of the spellings of *maštakal*. See Markham J. Geller, "An Akkadian Vademecum in the Babylonian Talmud", in *From Athens to Jerusalem: Medicine in Hellenized Jewish Lore and in Early Christian Literature*, ed. Samuel Kottek et al. (Rotterdam: Erasmus Publishing, 2000), 28; Id., *Akkadian Healing Therapies in the Babylonian Talmud* (Berlin: Max-Planck-Institut für Wissenschaftsgeschichte, 2004), 24 (*apud* Panayotov, "Magico-medical Plants", 208–209). According to Thompson (*Dictionary of Assyrian Botany*, 39), *maštakal* was a "washing" plant, a soapwort, such as those widely used among the rural population of Iraq. However, other *Salsola* species are also available in the region, again used as washing plants, and some of these *Salsola*-plants may have been associated with yet another name, the *uḫūlu-qarnānu*-plant. See Cinzia Pappi, *Seifen(kraut)*, vol. 12, in *Reallexikon der Assyriologie*, ed. Michael P. Streck (Berlin: De Gruyter, 2010), 353.

is to pair textual mentions or descriptions of plants with their physical attestations, such as, for example, their material impression on clay. This particular method has been used in a study that analyzed house amulets.[18] In Mesopotamia, house amulets often took the shape of clay tablets containing spells or incantations that were aimed at protecting the house from various evils, and they were hung in the house. In some cases, the sides of these amulets presented holes and slots where organic materials, specifically plant *leaves* and *branches*, seem to have been inserted, leaving traces of fibers on the wet clay. Today the organic material has decomposed, but its traces are still visible. Some of the incantations on these amulets mentioned plants, by themselves or in combination, whose magico-medical powers were meant to be activated, as in the following example: "Incantation: 'I have stepped on you, I am bringing you in, O ta[marisk] (*bīnu*), pure tree, soapwort (*maštakal*), and 'offshoot'[19] of the da[te-palm] (*libbi gišimmari*) [...]. I have looked at the tamarisk (*bīnu*) – may it (the evil) be undone for me. I have looked at the [soa]pwort (*maštakal*) – may it be annulled [for me]. I have looked at [the "offshoot" of the] da[te palm] (*libbi gišimmari*) [...]'" (KAT 78).[20]

All three plants mentioned (tamarisk, soapwort, and date palm) have been considered as candidates for the slots and holes present in the clay, and at least in the case of the *libbi gišimmari*, it appears that the marks left in the clay may correspond to the traces that a leaf of *Phoenix dactylifera* (otherwise: date-palm) could have left behind, confirming the identification.[21]

The identification of plant names is essential for the study of ancient plants, but larger questions, aimed at exploring how *knowledge* of the same was obtained, how it was maintained, transmitted, and elaborated are likewise important. Babylonian sources are invariably silent in this regard, but occasional pointers hide *behind* what contemporaries were saying, or *beneath* intercultural misunderstandings, which only emerge from comparative explorations. A recent case study explored comparable methods used to describe botanical information in the Mesopotamian Herbal *Šammu šikinšu* and in Book 9 of Theophrastus' *Historia Plantarum,* concluding that knowledge and methods in the study of plants were most likely shared between the two cultures.[22] This investigation is just one example of how comparative work can lead to new insights in the matter, and is important not only for its implications in the transmission of methods in the first millennium BCE, but also because it ultimately suggested we can still learn something new from Theophrastus. Any additional element that may

[18] Panayotov, "Magico-medical Plants".

[19] According to Landsberger (Benno Landsberger, "The Date Palm and is By-products According to the Cuneiform Sources", *Archiv für Orientforschung* 17 (1967): 14a, e), the logogram ŠÀ for *libbu* may have replaced an older writing PEŠ for *libbu*, offshoot, frond, branch (*apud* Panayotov, "Magico-medical Plants", 205).

[20] Cf. Panayotov, "Magico-medical Plants", 204.

[21] Ibid., 205–206.

[22] Rumor, "At the Down of Plant Taxonomy".

contribute in any way to the research on Mesopotamian plants has the potential to be, given the present situation, extraordinarily useful.

A second case study can be mentioned to show the potentials of such an approach. In the context of a cross-cultural investigation of astro-medical texts,[23] the study discusses Galen's (2nd c. CE) comments in regard to some of the 36 so-called "sacred plants of the Horoscopes". According to Galen, those plants were recorded in a book attributed to Hermes the Egyptian but ought to be dismissed as nonsense. What turns out instead is that such names were simply symbolic, and their real nature can now be explained and reconstructed thanks to cuneiform sources. Here is Galen:

> He [Pamphilus] then goes on to mention *a plant named 'eagle'* [Gr. *aetos*], as he claims, about which he concedes that no Greek has ever said anything; instead, it [= the eagle-plant] is recorded in one of the books attributed to *Hermes the Egyptian*, containing the *36 sacred plants of the horoscopes*, all of which are clearly nonsense very similar to the *ophionika* and the *conkhakokhla*. But there never was such a thing as a *conkhakokhlos*; its very name is ridiculous, just like the rest of the material in his book. Besides, the 36 plants exist merely in name and are not based on any real plant.[24]

The "eagle plant" mentioned by Galen as one of the "36 sacred plants of the horoscopes" happens to occur on cuneiform astro-medical tablets with the same cover name $TI_8^{mušen}$/Akk. *erû*-eagle. In those tablets it is likewise used in correspondence with *Aquarius*, one of the constellations of the Zodiac ("the horoscopes"): "Eagle($TI_8^{mušen}$/*erû*)-head, wing and blood (plants of Aquarius)" (*SpTU* 3, 104).

The cuneiform text from which the line above is quoted has been identified as having a textual parallel in a passage by Pliny the Elder,[25] who suggests a correspondence between "eagle" ingredients and "boxwood," a real plant, which (Pliny explains) is supposed to be employed for fever when the sun or the moon are crossing the constellation Aquarius:

> [...] It is especially in fevers that true medicine is opposed to the doctrines of the quacks. In fact they (the *magi*) have subdivided it (the treatment) in 12 signs (of the zodiac), according to the passage of the sun and again of the moon; [...] If (either sun or moon) is passing through Virgo, grains of barley (must be used); [...] if through Aquarius, boxwood charcoal (*buxo carbonibus*), pounded. [...].[26]

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[23] Maddalena Rumor, "Babylonian Astro-medicine, Quadruplicities and Pliny the Elder", *Zeitschrift für Assyriologie* 111, no. 1 (2021): 55–57.

[24] Gal., *SMF* VI, *proem.* (= XI, 797–798 K.). Translation by Caroline Petit, "Galen, Pharmacology and the Boundaries of Medicine: a Reassessment", in *Collecting recipes. Byzantine and Jewish pharmacology in dialogue*, ed. Lennart Lehmhaus and Matteo Martelli (Berlin: De Gruyter, 2017), 53–54.

[25] Plin., *HN* XXX, 29. See Rumor "Babylonian Astro-medicine".

[26] Plin., *HN* XXX, 95–97: "[...] *praecipueque febrium medicina placitis eorum renuntiat. Namque et in duodecim signa digessere eam sole transmeante iterumque luna,* [...] *si virginem alteruter, hordei granis;* [...] *si aquarium, e buxo carbonibus tritis*". Translation adapted from William H. S. Jones, *Pliny, Natural History*, vol. 8 (Cambridge,

What is particularly revealing about this last example is the identification of specific elements that were coded in the original source (in the cuneiform tablet, or in Hermes the Egyptian) and that instead occur *with their explanation*, that is with the name of a plant, in the new rendering (in Pliny). Creating a precedent, the example opens up the possibility that additional, similar, cases may be found in other instances of mistranslation or misunderstanding.

6. Conclusions

Ultimately, because of all the problems discussed above, any potential piece of evidence, manifesting itself in any possible way, from any source, or even by accident, is priceless. The examples I chose to present in this short overview were the result of individual scholars' creativity, luck, and human focus on limited data. But no single individual, no individual scholar can process the amount and variety of evidence available, and correlate the figures in comprehensive ways. To assist human intuition, it would be most advantageous that all findings and textual data concerning plants in Mesopotamia be worked into a system allowing comparison, proportional analysis of occurrences, quantitative and qualitative appreciation, cross-querying,[27] and whenever appropriate even verify the data with experimentation. A further understanding of the subject, in my opinion, would finally be the result of a holistic and interdisciplinary examination that correlates Babylonian sets of plants and all their uses, with repertories of the same type of knowledge as derived from archaeology, paleo-botany, anthropology, and again from the cross-investigation of all extant texts produced by roughly-contemporary ancient civilizations, such as the Egyptian, Greek, Roman, Syriac, and perhaps even Medieval – a colossal, yet exciting, enterprise for the future.

MA: The Loeb Classical Library, 1963), 338–341. Another astro-medical text from Achaemenid Sippar prescribes the mineral *pappardilû*, mixed in 'eagle oil' (ì.GIŠ TI$_8^{mušen}$) to be anointed onto the patient's legs, again, in correspondence of Aquarius (BM 42385, edited in Irving Finkel, "On Late Babylonian Medical Training", in *Wisdom, Gods and Literature: Studies in Assyriology in Honour of W.G. Lambert*, ed. Andrew George and Irving Finkel (Winona Lake: Eisenbrauns, 2000), 214 n. 55: 22). Furthermore, a certain phonetic resemblance may be noticed between the Mesopotamian terms for 'eagle' and 'boxwood.' Akk. *urinnu* is a term for a regal bird often symbolizing the Assyrian king (the term is loaned from Sum. u$_{11}$-ri-in, which indicates the 'eagle'), and is very similar to the name of at least two trees originating from the Lebanese mountains, which are often mentioned together, that is the *erēnu* (var. *erinnu*) cedar, a tree also associated with royalty, and *taskarinnu*, our boxwood tree. There is thus a reasonable likelihood that, based on Pliny, we can identify both the *Kalendertexte*'s eagle-ingredients in *SpTU* 3, 104 and 105, and Galen's '*aetos*-eagle plant' to be cover names for boxwood-related substances.

[27] For example, it would be useful to be able to cross-analyze frequent combinations of plants with the specific purposes they were employed for; working with large data might also enable us to better discern the action of active ingredients within their context, both when they were used alone and in compound recipes.

Identifying the Plant Illustrated on Yerevan Dioscorides Greek Fragment. Some Remarks on the Illustrative Tradition of *De materia medica*

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/ Abstract

In MS Armenian 141 from the Matenadaran Library, Yerevan, one flyleaf is a fragment of an antique Greek manuscript of Dioscorides in capital letters (6th century?): it contains two chapters of *De materia medica* and an illustration. Highly stylised, the illustration does not lend itself easily to identification. The article argues that it illustrates not to the following chapter (*koris*) but the previous one (*androsaimon*). This arrangement, where the image comes after the chapter it exemplifies, is not attested in other Greek manuscripts of *De materia medica*. However, it occurs in a large number of manuscripts of Arabic translations and must also have been found in a (now lost) Syriac translation. The article argues that it can be traced back to a late antique Greek manuscript of Dioscorides, a distant ancestor of both our Greek fragment in Yerevan and the Arabic and Syriac tradition of Dioscorides.

Nel ms. Armeno 141 dalla Biblioteca Matenadaran, Erevan, un foglio di guardia è un frammento di un antico manoscritto greco di Dioscoride in lettere maiuscole (VI secolo?): contiene due capitoli del Sulla materia medica *e un'illustrazione. Altamente stilizzata, l'illustrazione non si presta facilmente all'identificazione. L'articolo sostiene che illustra non il capitolo successivo (*koris*) ma quello precedente (*androsaimon*). Questa disposizione, in cui l'immagine viene dopo il capitolo cui si riferisce, non è attestata in altri manoscritti greci del* Sulla materia medica*. Tuttavia, si trova in un gran numero di manoscritti di traduzioni arabe e si doveva trovare anche in una traduzione siriaca (ora perduta). L'articolo ipotizza che questa disposizione possa essere ricondotta ad un manoscritto greco tardoantico di Dioscoride, lontano antenato sia del nostro frammento greco di Erevan che della tradizione araba e siriaca di Dioscoride.*

/ Keywords

Dioscorides; Greek manuscripts; Materia medica; Matenadaran (Yerevan); Botanical illustrations; St John's wort.

Among the challenges faced by any modern reader of Dioscorides' text is that of naming the simples mentioned in *De materia medica* (mostly plants, but also animals and minerals), especially when it comes to using current scientific nomenclature. This is obviously not specific to Dioscorides' treatise, as the same issues arise for virtually all ancient – and medieval – texts dealing with plants, since very few people – regrettably, I am not one of them – have the skills of both a philologist and a botanist. As a result, modern translations of Dioscorides generally offer plant identifications based on earlier works, most of which date back to the 19th or early 20th century, with virtually no arguments.[1] Nevertheless, a major step forward has been achieved in recent years by Suzanne Amigues' work, specifically – in addition to individual studies on particular ancient plant names – with her edition of Theophrastus' botanical treatises, *Enquiries into Plants* and *On the Causes of Plants*, whose extensive commentary supports each suggested identification.[2]

We should also mention the more recent publication by our colleague Maximilian Haars entitled: *Die allgemeinen Wirkungspotenziale*.[3] It includes a German translation of Book XV of Oribasius' *Medical Collections*, an alphabetical catalogue of medicinal simples derived from Galen's treatise *On Simples*. Most importantly, for each simple, Maximilian Haars offers a detailed commentary on the possible (or impossible) identification, based on the ancient texts, whenever the plant is described, i.e. generally by referring to Dioscorides, or even Theophrastus and Pliny, since Galen, and Oribasius after him, provide virtually no description, referring instead to Dioscorides.[4] Where possible, Maximilian Haars bases his analysis on plant illustrations found in various manuscripts. We should nevertheless point out that these illustrations do not occur in the manuscripts of Oribasius or Galen, but only in some manuscripts of Dioscorides. Their adequacy to the corresponding text is sometimes questionable, especially in the case of the "Vienna Dioscorides" and the "Naples Dioscorides" – we shall come back to each of them soon – both of which preserve a highly reworked textual form known as the "Alphabetical Herbarium", where images and texts have different origins and have sometimes been artificially associated.[5]

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[1] For example: Manuela García Valdés, *Dioscórides. Plantas y remedios medicinales (De materia medica)*, 2 vol. (Madrid: Gredos, 1998); Max Aufmesser, *Pedanius Dioscurides aus Anazarba: fünf Bücher über die Heilkunde* (Hildesheim/Zurich/New York: Olms, 2002); and Lily Y. Beck, *Pedanius Dioscorides of Anazarbus. De materia medica* (Hildesheim/Zürich/New York: Olms, 2005).

[2] Suzanne Amigues, *Théophraste. Recherches sur les plantes*, 5 vol. (Paris: Les Belles Lettres, 1988–2006); Ead., *Théophraste. Les causes des phénomènes végétaux*, 3 vol. (Paris: Les Belles Lettres, 2012–2017).

[3] Maximilian Haars, *Die allgemeinen Wirkungspotenziale der einfachen Arzneimittel bei Galen. Oreibasios, Collectiones medicae XV. Einleitung, Übersetzung und pharmazeutischer Kommentar* (Stuttgart: Wissenschaftliche Verlagsgesellschaft, 2018).

[4] On Galen's use of Dioscorides, see Caterina Manco, "Dioscoride dans les *Simples* de Galien", *Revue des études grecques* 135 (2022): 65–101.

[5] On this textual form, see Marie Cronier, "L'Herbier alphabétique grec de Dioscoride: quelques remarques sur sa genèse et ses sources textuelles", in *Fito-zooterapia antigua y altomedieval: textos y doctrinas*, ed. Arsenio Ferraces Rodríguez (A Coruña: Universidade da Coruña, 2009), 33–59.

Whether we can, and above all whether we should, use the manuscript illustrations to identify the plants mentioned by Dioscorides is a tricky question. From a methodological point of view, this raises more than one problem, first and foremost: which manuscripts should be taken into account? Indeed, there is a wide variety of illustrations for the same chapter in Dioscorides' manuscripts, even within the Greek tradition. Naturally, one would tend to rely on the most celebrated witness, that is the "Vienna Dioscorides", whose illustrations – at least most of them – are highly naturalistic. But is the manuscript that offers the most realistic image necessarily the one that best corresponds to Dioscorides' text? In fact, it is now generally accepted that Dioscorides' *De materia medica* did not include illustrations in its original form, as it was written in the second half of the 1st century AD.[6] Without going into too much detail now, we will merely point out that, on the one hand, Dioscorides never refers to any illustrations, nor indeed does any later author who mentions Dioscorides, especially Galen, who nevertheless draws heavily on the treatise *De materia medica*.[7] Moreover, only a fraction of the surviving manuscripts of Dioscorides include illustrations (in Greek, the percentage is around one-third, but it changes significantly depending on the period and the textual family, with the majority of 'recent' manuscripts, from the 14th century onwards, not being illustrated) and none of the papyri of *De materia medica* are illustrated.[8] Last but not least, the illustrations of the same plant sometimes show major variations from one manuscript to another.

It is thus certain that illustrations were sometimes added to Dioscorides' text, but in ways that clearly differed, undoubtedly at different times and in several stages. In some cases, for example, it seems more likely that Dioscorides' text was added to a pre-existing collection of images: this is just what happened in the case of the above mentioned Greek Alphabetical Herbarium, which is transmitted by the two most famous Dioscorides witnesses, the one in Naples and the one in Vienna. This is a highly complex issue that requires a thorough knowledge not only of the illustrations – which goes without saying – but also of the manuscripts themselves and of the text and its history. Finally, while Greek is obviously the primary source, we cannot ignore the evidence of Latin[9] and Oriental translations (into Arabic, Syriac

[6] An update on this issue can be found in Joshua J. Thomas, "The Illustrated Dioskourides Codices and the Transmission of Images during Antiquity", *The Journal of Roman Studies* 109 (2019): 242.

[7] One exception is Cassiodorus, who refers to an illustrated herbarium by Dioscorides, a passage whose interpretation is moreover problematic and which, in my opinion, relates not to the Greek text but to a Latin version; see Minta Collins, *Medieval Herbals. The illustrative Traditions* (Toronto/London: The British Library and University of Toronto Press, 2000), 163–165, with previous bibliography.

[8] A list of papyri of Dioscorides can be found, for example, in the Mertens-Pack3 database of the CeDoPaL of the University of Liège (http://www.cedopalmp3.uliege.be/, accessed March 12, 2025, as the following links), with references to descriptions and bibliographies for each papyrus.

[9] On the highly complex Latin tradition of Dioscorides (of the three translations made in late Antiquity or early Middle Ages, only the most recent has been preserved in its entirety, in particular in the Munich manuscript discussed below), see the recent synthesis by Peter L. Schmidt, "Dioscorides Latinus", in *Die Literatur im Zeitalter*

and Persian)[10] which, in some cases, reflects an earlier state of the text and illustrations than that preserved in Greek, as we shall see later in this article.[11]

While in no way claiming to deal exhaustively with this matter, in this contribution I would like to discuss the example of a little-known Greek fragment of Dioscorides, which preserves two illustrations (in fact one complete illustration and the remains of a second). Starting from the questions raised by the identification of the illustrated plant, it will be possible to offer new considerations on the phenomenon of adding illustrations to Dioscorides' text.

1. The Yerevan fragment

The fragment in question is now held in Armenia, in Yerevan's Matenadaran library. It is a single leaf used as a flyleaf for manuscript 141 in the Armenian collection of the Matenadaran, a 328-leaves book on paper, measuring 222 × 170 mm. The manuscript contains various excerpts from the Old Testament in Armenian and can be dated to the 14th century based on palaeographic analysis. As stated in a note (f. 327v), the book was compiled by a certain Abraham on 8 June 1447 by bringing together various older parts.[12] The current binding, which may date back to this date (but this is uncertain), incorporates as initial flyleaves a leaf from a Greek manuscript on parchment (A), followed by double leaf from an Armenian manuscript on paper (B–C). The final flyleaves consist of a double leaf from another Armenian manuscript on parchment (D–E).

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des Theodosius (374–430 n. Chr.). Erster Teil. Fachprosa, Dichtung, Kunstprosa, ed. Jean-Denis Berger, Jacques Fontaine and Peter Lebrecht Schmidt (München: Beck, 2020), 135–140.

[10] There existed at least four Arabic translations of Dioscorides (from which the Persian translations derive), on which see the outstanding philological and linguistic analysis by Manfred Ullmann, *Untersuchungen zur arabischen Überlieferung der* Materia medica *des Dioskurides* (Wiesbaden: Harrassowitz, 2009). For an overview of Arabic manuscripts, see Marie Cronier, "Bizans'tan Araplara Dioskorides'in *De Materia Medica*'sının Elyazması Geleneği. The Manuscript Tradition of Dioscorides' *De Materia Medica* from Byzantium to the Arabs", in *Hayat Kısa, Sanat Uzun. Bizans'ta Şifa Sanatı. Life Is Short, Art Long. The Art of Healing in Byzantium*, ed. Brigitte Pitarakis (Istanbul: Pera Müzesi Yayınları, 2015), 148–151.

[11] Collins' *Medieval Herbals* is one of the best attempts to take all three linguistic traditions into account, although her approach is basically Westernist. This is a remarkable undertaking, even if some of its findings may require considerable revision in light of studies carried out since its publication. See more recently Andrew Griebeler, *Botanical Icons. Critical Practices of Illustration in the Premodern Mediterranean* (Chicago/London: University of Chicago Press, 2024), which provides a highly inspiring discussion on botanical illustration, with a deliberate focus on the Byzantine and Oriental traditions, but which is not strictly speaking a book devoted to the manuscripts themselves.

[12] Description of the Armenian manuscript in: Ō<nnik> Eganyan, A<ndranik> Zeyt'unyan and P'<ajlak> Ant'abyan (redaction: A<satur> Mnac'akanyan and Ō<nnik> Eganyan), *Mayr c'uc'ak hayerēn jeṙagrac' Maštoc'i anuan Matenadarani* [= Analytic catalogue of Armenian manuscripts in the "Maštoc'" Matenadaran], I (Erevan: Haykakan S<ovetakan> S<oc'ialistakan> H<anrapetut'yan> G<itut'yunneri> A<kademiayi> Hratarakč'ut'yun, 1984): col. 579–582 (including reproduction of part of the Greek folio).

Fig. 1. Yerevan, Matenadaran "Maštoc'", 141, flyleave Ա.v (recto of original folio). © Matenadaran.

The leaf we are interested in is the first (Fig. 1): it bears the foliation "Ա" (= A).[13] Originating from a Greek manuscript of Dioscorides, it was described – briefly and not without some approximations – in the catalogue of the Greek manuscripts in Yerevan published in 2008 by Rose Varteni Chétanian.[14] Unknown to Max Wellmann, the author of the reference edition of Dioscorides,[15] it has never been taken into account in published studies on the Greek text of Dioscorides.[16] I gave a first analysis of it in my dissertation, which demonstrated that it is very isolated from a philological point of view (it does not closely resemble any of the other surviving witnesses).[17] In fact, what interests us most here is its illustration.

[13] Diktyon (Réseau numérique pour les manuscrits grecs, http://www.diktyon.org/) 14227 in the Pinakes online database (https://pinakes.irht.cnrs.fr). I accessed this fragment as high-quality colour reproductions obtained from the Matenadaran Library in November 2022 through the intermediary of Brigitte Maire (University of Lausanne), to whom I would like to express my warmest thanks.

[14] Rose Varteni Chétanian, *Catalogue des fragments et manuscrits grecs du Matenadaran d'Erevan* (Turnhout: Brepols, 2008), 69–70 et 229 (colour plate showing the current recto).

[15] Max Wellmann, *Pedanii Dioscuridis Anazarbei, De materia medica, libri quinque*, 3 vol. (Berlin: Weidmann, 1906–1914).

[16] It was discovered by F.C. Conybeare during one of his two trips to the East (either in 1888 or 1891), in the Etchmiadzin library where it was then kept. The English philologist made a transcription (with correspondence in the edition by K. Sprengel, 1829–1830), a copy of the layout of the letters and two photographs, which he donated to the Bodleian Library in Oxford. These now form MS Oxford, Bodleian Library, *Greek Class*. E 19 (Diktyon 47974). The transcription is, however, rather confused and not free of errors; the photographs, for their part, are of unsatisfactory quality and difficult to read. The fragment is only mentioned incidentally by Collins, *Medieval Herbals*, 84, 112 n. 322, and Griebeler, *Botanical Icons*, 99, which seem to be based solely on previous bibliography.

[17] Marie Cronier, *Recherches sur l'histoire du texte du* De materia medica *de Dioscoride* (PhD diss., École pratique des Hautes Études, 2007), 200–213.

It is a sheet of parchment that now measures 215–220 × 152 mm, but it comes from an originally much larger manuscript: in fact, all that remains is the upper part of the original leaf, which was cut and turned 90° to fit the dimensions of the Armenian manuscript it was intended to protect. In addition, the current recto (f. Ur) is actually the verso of the folio as it stood in the original Greek manuscript. Most of its upper margin (now in the sewing, in the middle of the book) has been preserved, but the two original side margins (now at the top and bottom) have been largely trimmed, and the entire bottom of the leaf (about a half) has also been cut off. This modification dates back to the last binding, possibly carried out in 1447, as mentioned above, which also made use of Armenian manuscript fragments as flyleaves. Unfortunately, we have no information about the context of this operation, which is not without interest from a historical point of view: an Armenian environment where, alongside Armenian books, there were the remains of at least one very ancient Greek book, that was no longer being read.

The text is written in full-page script (the lines measure around 200 mm and comprise around forty letters) in an ogival capital letter slanted to the right. It is a sober, unrefined *scriptio continua*, lacking spirits and accents. Within the generally regular script, a few larger strokes clearly stand out, such as *phi*. The text and titles are written in the same light brown ink, with no evidence of rubrication. The only surviving initial (a *chi*, on the current recto) is a simple larger letter projecting into the margin, without any ornamentation. In the absence of a reference work on this style of writing, for which there are very few dated or datable manuscripts, all from the late period (between 861–862 and 995–996),[18] it is not easy to suggest a dating for this fragment. Yet its handwriting displays none of the features of late developments; on the contrary, it can be likened to the handwriting of some papyrus codex fragments, for which a date of around the 6th century is generally suggested – although the latter is not easy to argue. We can therefore cautiously suggest that the Greek manuscript from which the Yerevan fragment originates was produced at a fairly early date, perhaps the 6th century.[19] Its simple script and sober workmanship hardly make it a very refined object, and there is no reason to believe that it was made in Constantinople rather than in another part of the Byzantine world, which at that time was very vast. In fact, a provincial and oriental origin seems quite likely – but this of course remains hypothetical.

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[18] See Pasquale Orsini, *Studies on Greek and Coptic Majuscule Scripts and Books* (Berlin/Boston: De Gruyter, 2019), 133–164 (the Yerevan fragment is not mentioned).

[19] See similar handwritings in Guglielmo Cavallo and Herwig Maehler, *Greek Bookhands of the Early Byzantine Period, A. D. 300–800* (London: University of London/Institute of Classical Studies, 1987), pl. 23a (5th–6th c.), 28a (mid-6th c.), 39ab (late 6th c.), 42a (late 6th c.). Stella A. Vardanian, *Histoire de la médecine en Arménie de l'Antiquité à nos jours*, trad. française par Raymond H. Kévorkian (Paris: Union médicale arménienne de France, 1999), 100–102, 363, dates the Greek fragment to the 6th–7th centuries, "probably in Constantinople", without going into further detail. Chétanian, *Catalogue*, 69, places it in the 7th–8th century.

[III, 157] ΟΙ ΔΕ ΚΑΕ ΤΟΥΤΟ ΥΠΕΡΙΚΟΝ ΚΑΛΟΥΣΙ. ΦΥΛΛΟΝ ΕΧΕΙ ΠΑΡΑΠΛΗΣΙΟΝ ΤΩ ΤΗΣ ΕΡΕΙΚΗΣ, ΜΙΚΡΟΤΕΡΟΝ ΔΕ ΚΑΙ ΛΙΠΑΡΩΤΕΡΟΝ ΚΑΙ ΕΡΥ ΘΡΟΝ ΘΑΜΝΟΣ ΔΕ ΣΠΙΘΑΜΑΙΟΣ, ΕΥΣΤΟΜΟΣ ΔΡΙΜΥΣ, ΕΥΩΔΗΣ. ΤΟΥΤΟΥ Ο ΚΑΡΠΟΣ ΠΙΝΟΜΕ ΝΟΣ ΟΥΡΑ ΚΑΙ ΚΑΤΑΜΗΝΙΑ ΑΓΕΙ· ΒΟΗΘΕΙ ΚΑΙ ΦΑΛΑΓΓΙΟΔΗΚΤΟΙΣ ΚΑΙ ΙΣΧΙΑΔΙ ΚΟΙΣ ΚΑΙ ΟΠΙΣΘΟ ΤΟΝΙΚΟΙΣ ΣΥΝ ΟΙΝΩ ΠΙΝΟΜΕΝΟΣ, ΠΡΟΣ ΔΕ ΡΙΓΗ ΣΥΝ ΠΕΠΕΡΕΙ· ΕΠΙ ΔΕ ΟΠΙΣΘΟΤΟΝΙΚΩΝ ΚΑΙ ΣΥΓ ΧΡΙΣΜΑ ΣΥΝ ΕΛΑΙΩ ΑΡΜΟΔΙΟΝ.

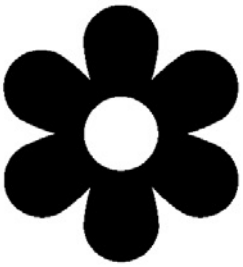

Fig. 2. A proposal to reconstitute the original recto (from f. U.v).

[III, 158, chapter continued] ΕΣΤΙ ΔΕ ΚΑΙ ΕΤΕΡΑ ΧΑΜΑΙΠΙΤΥΣ ΚΛΑΔΟΥΣ ΕΧΟΥΣΑ ΠΗΧΥΑΙΟΥΣ ΑΓΚΥΡΟΕΙΔΕΙΣ ΛΕΠΤΟΚΑΡΦΟΥΣ ΚΟΜΗΝ ΔΕ ΕΟΙΚΥΙΑΝ ΤΗ ΠΡΟ ΑΥΤΗΣ ΚΑΙ ΑΝΘΟΣ ΣΠΕΡΜΑ ΔΕ ΜΕΛΑΝ ΟΖΕΙ ΔΕ ΚΑΙ ΑΥΤΗ ΠΙΤΥΟΣ.

[III, 158, end of chapter] ΚΑΙ ΤΡΙΤΗ ΤΙΣ ΕΣΤΙΝ ΑΡΡΗΝ ΚΑΛΟΥΜΕΝΗ ΕΣΤΙ ΔΕ ΒΟΤΑΝΙΟΝ ΕΧΟΝ ΦΥΛΛΑΡΙΑ ΛΕΠΤΑ ΛΕΥΚΑ ΔΑΣΕΑ ΚΑΥΛΟΝ ΔΕ ΤΡΑΧΥΝ ΛΕΥΚΟΝ ΑΝΘΥΛΛΙΑ ΜΗΛΙΝΑ ΣΠΕΡΜΑΤΙΑ ΔΕ ΠΑΡΑ ΤΑΣ ΜΑΣΧΑΛΑΣ ΟΖΕΙ ΔΕ ΚΑΙ ΤΟΥΤΟ ΠΙΤΥΟΣ ΔΥΝΑΜΙΝ ΔΕ ΕΧΟΥΣΙ ΚΑΙ ΑΥΤΑΙ ΟΜΟΙΑΝ ΤΗ ΠΡΟΕΙΡΗΜΕΝΗ ΟΥ ΜΗΝ ΟΥΤΩΣ ΠΡΑΚΤΙΚΗΝ.

[End of Book III]

Fig. 3. A proposal to reconstitute the original verso (from f. U.r).

On what was originally the recto (now verso), we read the end of Dioscorides' chapter on the *androsaimon* (ἀνδρόσαιμον: *De materia medica*, Book III, chap. 156) followed by an image – we will shortly come back to the identification of this image – and then a title, *koris* (κόρις), which is that of the following chapter in Dioscorides (III, 157). The text of this last chapter would have been on the lower part of the page, now lost. On the verso (now recto), in the upper margin the heading *chamaipitys* (χαμαίπιτυς) is found, followed by the text of the corresponding chapter (III, 158: beginning). Just below, the upper part of an image can be made out, almost entirely lost (see Fig. 2–3 for a tentative reconstitution).

So what is the plant illustrated on the original recto? We should point out at the outset that the Armenian note written next to this figure does not provide its name. According to Anna Sirinian and Francesco D'Aiuto, it dates back to the modern period (16th–17th century) and, although it remains enigmatic, it probably corresponds to an early library shelfmark or to a reader's "visa" – relating to the Armenian manuscript and not to the Greek one.[20]

2. Layout of illustrations and text

Let us look again at our plant illustration. Before delving into the question of its identification, we should first consider the placement of the illustrations in relation to the text in Dioscorides' manuscripts. Among those that contain the Greek text with accompanying illustrations, we can observe a wide range of possible page layouts, with the following as the main ones.

The first type consists of a full-page layout, with the image and accompanying text facing each other on one verso and the next recto (sometimes the text is on one verso and thus precedes the image on the next recto). This is the layout in use in the well-known Vienna Dioscorides (Wien, Österreichische Nationalbibliothek, cod. med. gr. 1, early 6th century), which is famous for its botanical illustrations, which are many in number (almost 400 today, despite numerous *lacunae*) and mostly – but not always – of the highest quality and naturalism.[21] This layout, far from economical (since large parts of the pages are left blank and a plant takes up at least one recto and one verso, sometimes more if the text is long), places great emphasis on botanical figures. To avoid any ambiguity, the image generally comes with its own title, duplicating the title of the facing chapter. However, many images have no title, and this has led to frequent confusion, especially when a text covers several successive pages

[20] Personal communication by e-mail of February 4, 2023. My sincere thanks go to both colleagues and friends for their generous and invaluable help.

[21] Diktyon 71026, with a link to (unfortunately only partial) online digitalization. In addition to the non-exhaustive bibliography provided on this page, see the bibliography available on the ÖNB website (https://www.onb.ac.at/sammlungen/sammlung-von-handschriften-und-alten-drucken/literaturdokumentation).

(so the reader does not immediately understand whether it is illustrated by the image that precedes it or by the one that follows it) or when leaves have been lost.

A second option is to have the image at the top of the page and the text below. This is the layout of the famous Naples Dioscorides (which is less celebrated but probably older than its twin, the Vienna Dioscorides: 2nd half of the 4th or 5th century).[22] There are several plants placed side by side on the same page, usually two or three (or even four). The width of the writing column is adjusted to suit the width of the figure (which was drawn first) and the amount of text to be copied.

In a third type of page layout, the width of the writing column is reduced for a few lines, allowing the image to fit within the text, while sparing the medium (paper or parchment). An example of this arrangement can be found in MS grec 2179 from the Bibliothèque nationale de France, which was completed in the Syro-Palestinian area towards the end of the 8th century or the 9th, and which displays a strong Arabic influence.[23] In any case, we find the same layout in many of the manuscripts preserving an Arabic translation of Dioscorides (though not in all of them, as we shall see): for example, in manuscript 2954 in the Bologna University Library, dated AH 642 (AD 1245),[24] but also in the oldest Arabic witness to Dioscorides, MS Or. 289 in the Leiden University Library, dated AH 475 (AD 1083).[25]

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[22] Diktyon 45957, with a link to the online reproduction. I agree with the dating suggested by Boris L. Fonkič: Борис Л. Фонкич, "ΔΙΟΣΚΟΥΡΙΔΗΣ. ΠΕΡΙ ΥΛΗΣ ΙΑΤΡΙΚΗΣ. *Dioscurides. De materia medica. Codex Neapolitanus graecus 1 of the National Library of Naples*, Athens (Fac-sim.)", МОНФОКОН. Исследования по палеографии, кодикологии *и* дипломатике 1 (2007): 530–534, rather than the late 6th or 7th century dating generally adopted in the bibliography; for a discussion, see Marie Cronier, "Dioscorides in Southern Italy (11th–13th c.)", in *Die griechische Gelehrsamkeit in Süditalien. Manuskripte, Texte und Wissenstransfert im 10.–13. Jahrhundert*, ed. Christian Brockmann, Alessandro Musino, Stefano Valente and Eva Wöckener-Gade (Göttingen: Vandenhoeck & Ruprecht, 2025), 87–119: 90–91.

[23] Diktyon 51808, with a link to full online digitalization. On its dating, location and history (particularly as regards the question of Arab influence), may I refer readers to Marie Cronier, "Transcrire l'arabe en grec. À propos des annotations du *Parisinus gr*. 2179 (Dioscoride)", in *Manuscripta Graeca et Orientalia. Mélanges en l'honneur de Paul Géhin*, ed. André Binggeli, Anne Boud'hors and Matthieu Cassin (Leuven/Paris: Peeters, 2016), 247–265; Ead., "À l'origine du *Breviarium medicaminum omnium* de Stéphane d'Antioche: un manuscrit de Dioscoride (*Par. gr*. 2179)", *Rivista di Studi Bizantini e Neoellenici* n.s. 59–2022 (2023): 249–288; and Ead., "Dioscorides in Southern Italy": 102.

[24] Bologna, Biblioteca Universitaria, 2954. Full online digitalization: http://hdl.handle.net/20.500.14008/78130. Description in Orazgozel Machaeva, *Catalogo dei manoscritti islamici conservati nella Biblioteca Universitaria di Bologna* (Bologna: Persiani Editore, 2017), v. 1, 206–210; see also Collins, *Medieval Herbals*, 129–130. It contains the most widely used Arabic translation of Dioscorides, the one made in Baghdad in the mid-9th c. by Iṣṭifān b. Basīl, a disciple of the famous translator Ḥunayn b. Isḥāq.

[25] Leiden, Universiteitsbibliotheek, Or. 289. Full online digitalization: https://digitalcollections.universiteitleiden.nl/view/item/3641201. About is, see: Pieter de Jong and Michael J. de Goeje, *Catalogus codicum orientalium Bibliothecae Academiae Lugduno Batavae*, III (Lugduni Batavorum: Brill, 1865), 227–229; Petrus Voorhoeve, *Handlist of Arabic manuscripts in the Library of the University of Leiden and other collections in The Netherlands* (Lugdunum Batavorum: in Bibliotheca Universitatis, 1957), 109; Mahmoud M. Sadek, "Notes on the introduction and colophon of the Leiden manuscript of Dioscorides' *De Materia medica*", *International Jour-*

Another possible layout is to insert the image before the corresponding chapter, not on a full page but only a few lines high. In this way, the text can follow the image on one and the same page. This is a cheaper variant of the layout used in the Vienna Dioscorides. The finest example is a Greek manuscript of Dioscorides held in New York, The Morgan Library and Museum, MS M. 652,[26] where the space provided for each image fills the whole page width. A similar form is found in München, Bayerische Staatsbibliothek, *Codex latinus monacensis* (*Clm*) 337, which palaeographers and art historians place in southern Italy in the second half of the 10th century:[27] it includes a Latin translation of Dioscorides of uncertain date (6th or 7th century?), of which it is the only illustrated witness.[28] In this manuscript, the layout is the same as in the New York Greek manuscript, except that the text is arranged in two columns and the illustrations are very small.

Still in the Latin field, incidentally, but departing from Dioscorides, the same layout (with the image preceding the text) is consistently found in the most famous Latin herbarium of the early Middle Ages, pseudo-Apuleius' *Herbarius*, most often on full page (e.g. in the oldest witness: Leiden, Universiteitsbibliothek, Vossius lat. Q. 9, from the 7th century)[29] but sometimes also in two-column format (especially in late manuscripts).[30]

3. *Koris*?

In our Yerevan fragment, the picture fills the whole page width, as it does in the New York and in the Latin manuscripts. As has been seen, it is found between the end of chapter 156, *androsaimon* (ἀνδρόσαιμον) and the title of chapter 157, *koris* (κόρις) of Book III of *De materia medica*. Therefore, it is fully legitimate to consider it a layout similar to that of the New York manuscript, where the image comes before the text, and in this case the depicted plant would be *koris* (κόρις). As mentioned above, the fragment does not preserve this chapter of Dioscorides, but we can refer to the text of M. Wellmann's edition, which provides the following

nal of Middle East Studies 10 (1979): 345–354; Collins, *Medieval Herbals*, 118–124; on the textual form it preserves, a revision by the Persian scholar al-Nātilī (2nd half of the 10th c.) of the translation by Iṣṭifān b. Basīl, see Ullmann, *Untersuchungen*, 319–338.

[26] Diktyon 46634, with a link to full online digitalization.

[27] Full online digitalization: https://www.digitale-sammlungen.de/de/view/bsb00147803. On this MS, see Collins, *Medieval Herbals*, 149–154, with previous bibliography.

[28] On this translation and the other manuscripts that have preserved it, see Peter Christian Jacobsen, "Dioscorides latinus, *De materia medica*. Alte und Neue Fragmente der ältesten handschrift (Codices Latini Antiquiores VIII 1191)", *Scriptorium* 64 (2010): 185–226 and pl. 26–36.

[29] Full online digitalization: http://hdl.handle.net/1887.1/item:4151654. On this manuscript, see Collins, *Medieval Herbals*, 167–168, 177–179, with previous bibliography.

[30] On pseudo-Apuleius' *Herbarius*, see the synthesis by Peter L. Schmidt, "Das Herbariencorpus", in *Die Literatur im Zeitalter des Theodosius (374–430 n. Chr.). Erster Teil. Fachprosa, Dichtung, Kunstprosa*, ed. Jean-Denis Berger, Jacques Fontaine and Peter Lebrecht Schmidt (München: Beck, 2020), 124–135.

description in the first part of the chapter (before the account on its therapeutic properties): "St John's wort: but some call this plant also *hypericon*. It has a leaf nearly resembling that of heath, except it is smaller and shinier and red. It is a shrub a span tall, tasty, pungent, and fragrant".[31]

In the treatise *De materia medica*, this chapter follows a group of plants corresponding to different varieties of St John's wort: *hyperikon* (ὑπερικόν: III, 154); *askyron* (ἄσκυρον: III, 155) and *androsaimon* (ἀνδρόσαιμον: III, 156).[32] Since our *koris* is also referred to (as Dioscorides tells us) by the name of the first of these (*hyperikon*), we are allowed to consider that this plant is a variety of St John's wort. In his German translation published in 1902, J. Berendes suggests identifying it with *Hypericum coris* L.[33] For her part, in her Spanish translation of Dioscorides published in 1998, Manuela García Valdés proposes an identification with *Hypericum empetrifolium* Willd. or also with *Hypericum coris* L.[34] Max Aufmesser, the author of a German translation published in 2002, retains the identification with *Hypericum empetrifolium*, "Johanniskraut".[35] Finally, in her English translation published shortly afterwards (2005), Lily Beck also offers the two alternative identifications, *Hypericum empetrifolium* and *Hypericum coris* L. "St. John's wort".[36]

Of course, Dioscorides' description is far too concise to allow precise identification under current scientific nomenclature. Nevertheless, a comparison of the leaves with those of the heather does match *Hypericum empetrifolium* and *Hypericum coris* L., which are St John's wort species featuring whorled leaves in groups of three to five. Likewise, both are between 10 and 30 cm tall, which may be consistent with the height of a span reported by Dioscorides. At first glance, the reference to the leaf being "red" would seem problematic,[37] as both *Hypericum coris* L. and *Hypericum empetrifolium* have green leaves, but in the case of *Hypericum empetrifolium* at least, the leaf turns reddish-orange in winter, a characteristic that Dioscorides may have found decisive.[38]

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[31] Dsc., *MM* III, 157 (= II, 163.13–16 W.): κόρις·οἱ δὲ καὶ τοῦτο ὑπερικὸν καλοῦσι. Φύλλον ἔχει παραπλήσιον τῷ τῆς ἐρείκης, μικρότερον δὲ καὶ λιπαρώτερον καὶ ἐρυθρόν· θάμνος δὲ σπιθαμιαῖος, εὔστομος, δριμύς, εὐώδης; English translation by Beck, *Pedanius Dioscorides*, 250 (καὶ ἐρυθρόν "and red" is not translated by Beck).

[32] Regarding the fact that these plants correspond to different varieties of St John's wort (*Hypericum*), see Haars, *Die allgemeinen Wirkungspotenziale*, 176 (ἀνδρόσαιμον/*androsaimon* and ἄσκυρον/*askyron*) and 403 (ὑπερικόν/*hyperikon*), which states that more precise identifications are uncertain: *askyron* may be *Hypericum perforatum* L. and *androsaimon* (also called Διονυσιάς/*Dionysias*) may be *Hypericum perfoliatum* L.

[33] Julius Berendes (transl.), *Des Pedanios Dioskurides aus Anazarbos Arzneimittellehre in fünf Büchern* (Stuttgart: Enke, 1902), 363, chap. 164 (174).

[34] Translation by García Valdés, *Dioscórides*, 341 n. 210.

[35] Translation by Aufmesser, *Pedanius Dioscurides*, 218.

[36] Translation by Beck, *Pedanius Dioscorides*, 250.

[37] In fact, Lily Beck has left this word out of her translation, perhaps revealing some uncertainty.

[38] As this simple is not dealt with by Theophrastus or Oribasius, we cannot rely on the works of Susanne Amigues or Maximilian Haars. It also does not occur in the catalogue of simple plants provided by Galen in books VI-VIII of his treatise *On Simples*, and therefore it is not analysed in: Caterina Manco, *Les livres VI à VIII*

Let us now turn to the illustrations that go with the *koris* chapter in Dioscorides' manuscripts. Unfortunately, the "finest" manuscripts, namely the Vienna Dioscorides and the Naples Dioscorides, omit this chapter (they retain only a selection corresponding to a large half of the entire treatise). In addition, this chapter was lost in the New York Dioscorides.[39] The most significant evidence is that of the already mentioned *Par. gr*. 2179 (copied at the end of the 8th century or in the 9th century in the Syro-Palestinian area): the picture closely matches Dioscorides' description, with a bushy plant with thin red leaves (f. 69v: Fig. 4). The presence of yellow flowers, which are not referred to by Dioscorides, is consistent with the two suggested identifications (*Hypericum coris* L. and *Hypericum empetrifolium*).

A very basic illustration is provided in manuscript A 95 sup. in the Biblioteca Ambrosiana in Milan (f. 107v), a descendant of the New York Dioscorides (probably a direct copy) copied in Constantinople at the beginning of the 14th century by a physician for his personal use, in a clear concern for economy.[40] It was certainly the copyist himself who drew the figure, which looks so sketchy (as do all the illustrations in this manuscript) that it can only give us a very flawed image of the one (now lost) that was in its model.

Finally, in the Paris manuscript, BNF, grec 2183, copied in Constantinople in the mid-14th century but whose illustrations are slightly later, probably from the 15th century, *koris* is depicted on f. 92r (Fig. 5).[41] The basic picture does not seem to be linked to any other illustrative tradition. It is possible, and even probable, that it was executed by the miniaturist based solely on Dioscorides' description.

In Latin, the only illustrated manuscript of a translation of Dioscorides, *Clm* 337 (already mentioned), provides a rough picture (f. 108v: Fig. 6).[42] However, it is clearly related to that

du traité des Simples de Galien. Histoire du texte et traduction annotée (PhD diss., Université Paul-Valéry de Montpellier 3/Università di Bologna, 2020).

[39] In fact, *koris* is not included among the chapters selected in the textual form known as the 'Alphabetical Herbarium'. In MS M. 652 in the Morgan Library, this chapter has been lost in a lacuna between f. 86 and f. 87. In manuscript Ω 75 from the Monastery of the Great Lavra on Mount Athos (on which see infra, n. 61), this chapter is not illustrated (f. 70r).

[40] Diktyon 42206, with a link to full online digitilization and bibliography. More specifically on its history, see Marie Cronier and Patrick Gautier Dalché, "A Map of Cyprus in Two Fourteenth-Century Byzantine Manuscripts", *Imago Mundi. The International Journal for the History of Cartography* 69 (2017): 176–187, and Marie Cronier, "Quelques manuscrits médicaux grecs liés à Chypre", in *Griechisch-byzantinische Handschriftenforschung. Traditionen, Entwicklungen, neue Wege*, ed. Christian Brockmann, Daniel Deckers, Dieter Harlfinger and Stefano Valente (Berlin/Boston: De Gruyter, 2020), 131–144 and 756–758 (plates): 131–136.

[41] Diktyon 51812, with a link to full online digitalization and bibliography. On this manuscript and the (tricky) question of the addition of its illustrations, see more specifically Marie Cronier, "Comment Dioscoride est-il arrivé en Occident? À propos d'un manuscrit byzantin, de Constantinople à Fontainebleau", Νέα Ῥώμη. *Rivista di ricerche bizantinistiche* 10 (2013): 185–209.

[42] This chapter is not preserved in any of the two Latin treatises which preserve fragments of the two earliest translations of Dioscorides, sometimes with illustrations: *De herbis feminis* (or *femininis*) and *Curae herbarum*; on these see Schmidt, "Dioscorides Latinus".

Fig. 4. Paris, BNF, grec 2179, f. 69v (detail): illustration of *koris*.

Fig. 5. Paris, BNF, grec 2183, f. 92r (detail): illustration of *koris*.

Fig. 6. München, Bayerische Staatsbibliothek, *Clm* 337, f. 108v (detail): illustration of *koris*.

of *Par. gr*. 2179, especially in terms of the yellow floral endings at the upper ends of the stems and the reddish-brown colour of the plant as a whole. To the left of the plant is depicted a big insect, which is probably an interpretation of the Greek name *koris*, which refers not only to the plant but also to the bug (although this does not occur in Dioscorides).

Arabic manuscripts definitely provide the largest number of *koris* illustrations, but there are significant differences between them. The main group consists of illustrations related to that of *Par. gr.* 2179. Firstly, there is MS arabe 4947 of the Bibliothèque nationale de France (Paris), which was made in northern Syria in the second half of the 12th century (this is the original exemplar of an Arabic translation based on a Syriac translation that has now been lost).[43] It includes (f. 77r: Fig. 7, bottom) an illustration in every respect resembling that of *Par. gr*. 2179. Unquestionably related forms, but becoming increasingly simple, especially lacking flowers – and sometimes being green rather than reddish-brown – are found in later manuscripts, all of which provide Iṣṭifān's translation: Oxford, Bodleian Library, MS. Arab. d. 138 (f. 88r), dated AH 637 (AD 1240);[44] Bologna, Bibl. Univ., 2954 (f. 186r: Fig. 8), dated AH 642 (AD 1245);[45] Istanbul, Süleymaniye Yazma Eser Kütüphanesi, *Ayasofya* 3702 (f. 67v), 13th century;[46] and London, British Library, Or. 3366 (f. 113r), dated AH 735 (AD 1334).[47]

For its part, the oldest Arabic copy of Dioscorides, manuscript Or. 289 of Leiden University Library (dated AH 475/AD 1083), already mentioned, displays a rudimentary but fairly accurate illustration (f. 140r: Fig. 9): it shares similarities with both that of *Par. gr*. 2179 and that of *Clm* 337.

On the other hand, manuscript *Ahmet III* 2127 from Topkapı Palace Museum Library in Istanbul, dated 1227 and whose text faithfully copies *Par. ar*. 4947,[48] gives a completely

[43] Full online digitalization: https://gallica.bnf.fr/ark:/12148/btv1b84229648. About the origin of this manuscript, see Collins, *Medieval Herbals*, 124–126; for a philological analysis of the translation it preserves, see Ullmann, *Untersuchungen*, 339–340. The close relationship between the illustrations in the two manuscripts has already been pointed out by Edmond Bonnet, "Étude sur les figures de plantes et d'animaux peintes dans une version arabe, manuscrite, de la *Matière médicale* de Dioscoride conservée à la Bibliothèque nationale de Paris", *Janus* 14 (1909): 294–303, but it should be stressed that in reality it is not limited, for Arabic, to *Par. ar*. 4947 alone; the Mashhad manuscript, for example, which will be dealt with later, also has images which are very close to those of the two Paris manuscripts, *gr*. 2179 and *ar*. 4947.

[44] Full online digitalization with description: https://digital.bodleian.ox.ac.uk/objects/4f104fd5-16b5-4cd6-99b3-9a8f8868d7ff/. On this ms., see Collins, *Medieval Herbals*, 135.

[45] About it, see *supra* n. 24.

[46] Online facsimile: http://ekitap.yek.gov.tr/Uploads/ProductsFiles/da7275bd-ed21-48e7-ba1f-0cf7b3b35db0.pdf. About it, see Ekmeleddin İhsanoğlu, *Catalogue of Islamic Medical Manuscripts (in Arabic, Turkish and Persian) in the Libraries of Turkey* (Istanbul: Research Centre for Islamic History, Art and Culture, 1984), 235.

[47] Full online digitalization with description: http://www.qdl.qa/en/archive/81055/vdc_100022531380.0x000001. On this manuscript, see Ullmann, *Untersuchungen*, 26–28.

[48] On this manuscript, see Collins, *Medieval Herbals*, 127–129. On the fact that the Istanbul manuscript is an apograph of the Paris manuscript, see, most recently, Ullmann, *Untersuchungen*, 339.

Fig. 7. Paris, BNF, arabe 4947, f. 77r: illustration of *androsaimon* (top) and of *koris* (bottom).

Fig. 8. Bologna, Biblioteca Universitaria, 2954, f. 186r (detail): illustration of *koris*.

Fig. 9. Leiden, Universiteitsbibliotheek, Or. 289, f. 140r (detail): illustration of *koris*.

different image of *koris* (f. 182v) from that of its model: it shows a fairly dense bush, horizontally lying, with many intertwined branches, from which arise numerous outgrowths that might be flowers.[49] Finally, mention should be made of the *Ayasofya* 3704 manuscript in the Süleymaniye Kütüphanesi, Istanbul, which dates from the 13th century and is the only direct surviving evidence of a very early Arabic translation:[50] for the end of Book III of Dioscorides, it has a very altered text in which, notably, the chapter titles (the names of the plants) are omitted and the text is severely abbreviated. The *koris* may correspond to the chapter at the bottom of f. 95r, limited to a few words: "good for the mouth, pungent, pleasant".[51] The corresponding image (Fig. 10), which is very simple, is similar to that of *Ahmet III* 2127 in terms of structure, but is much simpler (a stem starting from the root and separating into two) and there are definitely leaves on either side of the stems (17 in all): the overall colour is monochrome (green).

Most of these illustrations (with the exception of those in *Ahmet III* 2127 and *Ayasofya* 3704, which are somewhat problematic) could match the *koris* as described by Dioscorides,

[49] I have accessed this manuscript in the form of scans of a black and white microfilm, kindly provided by Prof. Fabian Käs, to whom I would like to express my warmest thanks. The quality of the reproduction makes it impossible to distinguish with certainty whether leaves or flowers are represented on either side of the branches.

[50] Online facsimile: https://www.quranicthought.com/ar/books/3704–حشايش-كتاب-ترجمة/. On this manuscript and the translation it includes, known as the *Vetus translation*, dating from around the late 8th or early 9th century and based on a Greek original perhaps through an unpreserved Syriac intermediary, see Ullmann, *Untersuchungen*, 69–78 and 149 (who hypothetically suggests attributing it to al-Bitrīq).

[51] For translations of these Arabic words and their Greek equivalents, see the glossary compiled by Ullmann, *Untersuchungen*, 201 (طيب) 256, (حرف) and 272 (فم).

Fig. 10. Istanbul, Süleymaniye Yazma Eser Kütüphanesi, Ayasofya 3704, f. 94v (detail): possible illustration of *koris* (untitled).

specifically with regard to the thin leaves (except in the Latin manuscript), their red colour (except in a few Arabic manuscripts) and the bush-like general pattern. The flowers' yellow colour, always documented when flowers are shown, is consistent with St John's wort, although it is not specified by Dioscorides for this plant.

However, it should be emphasised that no illustration comes close to that of our Yerevan fragment, which has no flowers and whose leaves are green, smooth and broad (but not toothed, as in the Latin manuscript, nor bristling with prickles or hairs, as in *Ayasofya* 3704). Therefore, the image in the fragment may not correspond to Dioscorides' *koris*, and it is legitimate to consider another possible identification.

4. Another layout

Indeed, in some Arabic manuscripts there is yet another arrangement of images and text, different from those we have reviewed so far: in these, the image fills the complete page width but follows the text to which it relates.

This layout can be found in several manuscripts already mentioned: *Ayasofya* 3704 (where the layout is variable with sometimes a single column and sometimes two columns) but also *Par. ar.* 4947 and its copy (*Ahmet III* 2127). Most significantly, it is also found in a manuscript that I have not yet mentioned as I have not been able to access it: it is now in Mashhad, Iran, at the museum of Imam Riza's Shrine (Astan Qods-e Razavi). It is believed to be the original copy of a new Arabic translation of Dioscorides, based on the same intermediate Syriac translation as *Par. ar*. 4947 and completed shortly thereafter, in the second half of the 12th century.[52] From the few available reproductions, it is clear that each image follows the chapter

[52] On this manuscript, see Collins, *Medieval Herbals*, 126–127 (who knows it only through the reproductions provided in the previous bibliography) and lastly Mehran Sadeghi, "The *Ketab al-Hashayesh* in Safavid Iran and the Changes in its Style of Illustration Painting during the Period 1629–1658 A.D.", *Persica* 25 (2014–2016): 69–95, specifically for its use in the modern era, where several copies were taken of it. For a philological analysis of this translation, see Ullmann, *Untersuchungen*, 341–356; Hūšang Aʿlam, "The Arabic Translation of Dioscorides' *De materia medica* by Mihran b. Mansur in comparison with the older translation by Stephanos and Hunayn b. Ishaq", in *Proceedings of the Arabic and Islamic Sections of the 35th International Congress of Asian and*

Fig. 11. New York, The Morgan Library and Museum, MS M. 652, f. 311r: the chapter on *doryknion* (from ps.-Dioscorides, *Alexipharmaca*) followed by its illustration.

it illustrates: this must therefore have been the layout of the (now lost) Syriac translation and, perhaps, of the Greek model of this Syriac translation. This layout is also to be found in the manuscripts of the Persian translations (made between the second half of the 15th century and the beginning of the 17th, the surviving translations probably all being based on the Mashhad manuscript).[53]

Although this layout has not yet been found in any Greek witness to the treatise *De materia medica*, it does occur in manuscript M. 652 from the Morgan Library in New York, which we have already mentioned, but not for the authentic text by Dioscorides (books I to V, in which as we have seen the image is placed before each chapter – with the exception of Book V, which has virtually no illustrations). However, in the same manuscript, for Books VI (*Alexipharmaca*) and VII (*Theriaca*) placed under Dioscorides' name, which are in fact two apocryphal treatises on toxicology, the image of each chapter is found after it (see the example of chapter *doryknion* [δορύκνιον] followed by its illustration, on f. 311r: Fig. 11). To avoid any ambiguity, here the figure is given its own name (written in a simple capital letter, using rubrication ink), distinguished from the chapter title (in a distinctive capital letter, using the brown ink of the text).

We can therefore consider the idea that the Yerevan fragment uses the same layout, i.e. that the image depicts not the *koris* chapter (which follows) but the *androsaimon* chapter (which precedes).

5. *Androsaimon*?

Let us now look at what Dioscorides tells us about *androsaimon* (ἀνδρόσαιμον): "St. John's wort: but others call it *Dionysias*, and others call this plant, too, *ascyron*. It is different from *hypericon* and *ascyron* in that it is a thin-stemmed and twiggy bush; its little stems are red. The leaves are three times the size of rue releasing a wine colored juice when brayed. It has many branches that have many pinnatifid leaves at the end and that are surrounded by small quince-yellow flowers. The seed, in capsules, is like that of corn poppy, striped as it were; the foliage releases a resinous smell when rubbed".[54]

North African Studies (ICANAS). Part one, ed. Kinga Dévényi and Tamás Iványi (Budapest: Eötvös Loránd University Chair for Arabic Studies & Csoma de Körös Society Section of Islamic Studies, 1998), 123–130.

[53] For example, in MS Philadelphia, University of Pennsylvania, Rare Book & Manuscript Library, Lawrence J. Schoenberg collection, 278 (full online digitalization: https://archive.org/details/ljs278). On the Persian translations of Dioscorides, see Sadeghi, "The *Ketab al-Hashayesh*".

[54] Dsc. *MM* III, 156 (= II, 163.1–8 W.): ἀνδρόσαιμον· οἱ δὲ Διονυσιάδα, οἱ δὲ καὶ τοῦτο ἄσκυρον καλοῦσι. διαφέρει δὲ τοῦ ὑπερικοῦ καὶ τοῦ ἀσκύρου θάμνος ὢν λεπτόκαρφος, φρυγανώδης, πεφοινιγμένος τὰ ῥαβδία·φύλλα τριπλασίονα πηγάνου, ἃ τριφθέντα οἰνώδη χυλὸν ἀνίησι, μασχάλας τε ἔχει πλείονας ἐπ' ἄκρῳ τεταρσωμένας, περὶ ἃς ἀνθύλλια μικρά, μήλινα· καρπὸς ἐν κάλυκι ὅμοιος τῷ τῆς μελαίνης μήκωνος, οἱονεὶ κατάγραφος· ἀνατριφθεῖσα δὲ ἡ κόμη ῥητινώδη ὀσμὴν προσδίδωσι. Translation by Beck, *Pedanius Dioscorides*, 249.

Fig. 12. Paris, BNF, grec 2179, f. 69r (detail): illustration of *androsaimon*.

Fig. 13. Paris, BNF, grec 2183, f. 92r (detail): illustration of *androsaimon*.

J. Berendes records his predecessors' identifications with *Hypericum ciliatum* Lam. (Sibthorp and Sprengel) and *Hypericum perfoliatum* L. (Fraas).[55] The latter identification is taken up by Manuela García Valdés,[56] Max Aufmesser[57] and Lily Beck.[58] It is also supported by Maximilian Haars.[59]

Let us now consider the illustrations we find for *androsaimon* (ἀνδρόσαιμον) in Dioscorides manuscripts. In Greek, we first find *Par. gr*. 2179 (f. 69r: Fig. 12), which depicts a bushy shrub, with oval green leaves grouped in twos on either side of the stems, with some small yellow flowers also starting from the stems; at the ends, some sort of black capsules with white borders. For its part, *Par. gr*. 2183 (f. 92r: Fig. 13) displays a figure which, like that of the above-mentioned *koris*, was most likely conceived by the miniaturist solely on the basis of Dioscorides' text. Fortunately, we also have two further witnesses:[60] manuscript M. 652 from the

[55] Translation by Berendes, *Des Pedanios Dioskurides aus Anazarbos Arzneimittellehre*, 363, chap. 163 (173).
[56] Translation by García Valdés, *Dioscórides*, 341, n. 209.
[57] Translation by Aufmesser, *Pedanius Dioscurides*, 217.
[58] Translation by Beck, *Pedanius Dioscorides*, 249.
[59] Haars, *Die allgemeinen Wirkungspotenziale*, 176.
[60] Once again, this chapter is not included in the textual family known as the "Alphabetical Herbarium", preserved in the Vienna and Naples Dioscorides.

Fig. 14. New York, The Morgan Library and Museum, MS M. 652, f. 12r (detail): illustration of *androsaimon*.

Fig. 15. Mont Athos, Ἱερὰ Μονὴ Μεγίστης Λαύρας, Ω 75, f. 22v (detail): illustration of *androsaimon*. © IRHT

Morgan Library (f. 12r: Fig. 14) and manuscript Ω 75 from the Ἱερὰ Μονὴ μεγίστης Λαύρας (Holy Monastery of Great Laura) on Mount Athos, which was copied towards the end of the 10th or the beginning of the 11th century, taking the New York manuscript as its main textual model (but not for its illustrations, which come from its second textual model), and therefore most likely in Constantinople[61] (f. 22v: Fig. 15). The striking thing about these four illustra-

[61] Diktyon 28937. Accessed in the form of a black and white microfilm made by Marcel Richard and held by the Institut de recherche et d'histoire des textes. On this manuscript and its two models, see Marie Cronier, "Quelques aspects de l'histoire du texte du *De materia medica* de Dioscoride: forme d'origine, remaniements et révisions à Constantinople aux Xe et XIe siècles", in *Ecdotica e ricezione dei testi medici greci. Atti del V Convegno Internazionale. Napoli, 1-2 ottobre 2004*, ed. Véronique Boudon-Millot, Antonio Garzya, Jacques Jouanna and Amneris Roselli (Napoli: D'Auria, 2006), 43–65, with previous bibliography.

tions, which are supposed to depict the same plant, is how different they are. They have little in common apart from the small leaves on either side of the stems.

In Latin, *Clm* 337 shows a figure (f. 108v: Fig. 16) which, once again, shares characteristics with its equivalents in both Greek and Arabic. In the Arabic manuscripts of Dioscorides, an image very similar to that of *Par. gr*. 2179 can be found not only in *Par. ar*. 4947 (f. 77r: Fig. 7, at the top), but also, to some extent, in *Ahmet III* 2127 (f. 182r). The illustration in MS *Or*. 289 from Leiden (f. 137v: Fig. 17) also comes close, but with a simplified structure that is undeniably reminiscent of the image of the abovementioned Latin manuscript. An even more simplified shape can be found in *Bodl. Arab. d*. 138 in Oxford (f. 87v), in *Bonon*. 2954 (f. 185v: Fig. 18), in *Ayasofya* 3702 (f. 67r) and in *Lond. Or*. 3366 (f. 112v).

The illustration on the folio kept in Armenia, which shows a shrubby plant, lying horizontally, without flowers but with small oval green leaves distributed on either side of the stems, could to some extent be more consistent with *androsaimon* (ἀνδρόσαιμον) than with *koris* (κόρις) of Dioscorides. Particularly, its very schematic appearance brings it closer to the image of the *androsaimon* from Morgan M. 652 (Fig. 14), although the latter has some brown leaves while the leaves on the Yerevan fragment are all green, with lighter or darker shades.

Needless to say, the highly schematic nature of the illustration precludes any definitive identification. Nevertheless, I believe the hypothesis that it relates to the chapter that precedes it rather than to the following one deserves serious consideration. In particular, this hypothesis is further supported by the fact that, on the verso (Fig. 3), the text of the chapter entitled *chamaipitys* (χαμαίπιτυς: Diosc. III, 158) begins at the very top of the page (in fact, we have kept the upper margin virtually untouched).[62] It is preceded by its title, ΧΑΜΑΙΠΙΤΥΣ, which is placed roughly in the middle of the line and highlighted by the same small horizontal fillets, above and below it, as the title ΚΟΡΙΣ (on the recto, Fig. 1–2), which follows the image. If we were dealing with a page layout in which the image preceded the corresponding chapter, the illustration of *chamaipitys* would necessarily have been at the bottom of the preceding verso, which would have been unsightly: this arrangement, in which text and image are dissociated on one recto and the following verso, is in fact avoided as much as possible. On the contrary, in books where the image follows the text, it is usual to start a chapter at the top of a page, as is the case for the *chamaipitys* (χαμαίπιτυς) in the Yerevan fragment and as is generally the case in *Par. ar*. 4947 (e.g. f. 77r, Fig. 7) and in Books VI and VII of Morgan M. 652 (e.g. f. 311r, Fig. 11). Thus, the rudimentary image of which only a few remnants can be seen at the bottom of the verso would, in my opinion, correspond to the first variety of *chamaipitys* (χαμαίπιτυς), the one described in the paragraph that can be read (III, 158, first

[62] On the recto (Fig. 1–2), the fact that the chapter on *androsaimon* (ἀνδρόσαιμον) begins halfway through a word, while a large portion of (empty) folio is preserved above first line, clearly shows that we are dealing with the upper part of the original folio and that no significantly larger portion is conceivable to have ever been above it.

Fig. 16. München, Bayerische Staatsbibliothek, *Clm* 337, f. 108v (detail): illustration of *androsaimon*.

Fig. 17. Leiden, Universiteitsbibliotheek, Or. 289, f. 139v (detail): illustration of *androsaimon*.

Fig. 18. Bologna, Biblioteca Universitaria, 2954, f. 185v (detail): illustration of *androsaimon*.

part) as two other varieties are then presented by Dioscorides (III, 158, end). The proposed reconstruction (Fig. 2–3), which is admittedly based on the text of Wellmann's edition (but the text of the surviving fragment generally corresponds to it, with only minor variants), also allows the end of Book III to coincide with the bottom of a verso (since chapter 158 is the last of this book), which is consistent with the canons of a careful manuscript.

6. Consequences for Dioscorides' illustrative tradition

It has already been said that the Yerevan fragment, which can be dated to around the 6th century, is the oldest evidence of a manuscript preserving *De materia medica* in its original arrangement with illustrations. But there is more: if the above assumption is confirmed, it would also provide the only evidence in Greek (and the oldest in any language) of a page layout of Dioscorides in which illustrations follow the corresponding chapters.

Given that this layout is fairly common in the manuscripts of Arabic translations,[63] especially those closest to the Greek or Syriac originals (ms. of Masshad, *Par. ar*. 4947, *Ahmet III* 2127 and *Ayasofya* 3704), this would seem to be the layout of their remote Greek ancestors.[64] Such Greek ancestors necessarily predate the period when the first Arabic translations were completed, i.e. the end of the 8th century and the middle of the 9th.[65] However, since this layout may be found in the Yerevan fragment, we could date its emergence back to Late Antiquity, to the 5th or 6th century at the latest, since it is not an innovation of its own, but must already have been present in its model.

In this respect, it is worth going back to the relationship of the Yerevan image with that of the *androsaimon* (ἀνδρόσαιμον) in manuscript M. 652 of the Morgan Library (Fig. 14). The latter was in fact created using several models, probably three for Dioscorides, of which it offers a new edition in a completely new order, called the "Alphabetical five-book recension" (the New York Dioscorides is its original exemplar). In this textual form, Book I – which includes *androsaimon* – is devoted to plants, which are arranged in alphabetical order according to their names: the main model for Book I is an "Alphabetical Herbarium" very similar to (but different from) the Vienna Dioscorides, with an adapted page layout, as we have seen:

[63] Incidentally, the very usual layout in the Arabic manuscripts further removed from the originals (e.g. *Leid. Or*. 289, *Bonon*. 2954, *Bodl. Arab*. d. 138, or *Lond. Or*. 3366), where the width of the writing column is reduced over a few lines within the chapter to make room for an illustration, seems to be an economical variation on this original layout. It is also found, from time to time, in *Ayasofya* 3704.

[64] It is not proven that the four Arabic translations, at least two of which used as an intermediary a Syriac translation – which has not been preserved and is of uncertain date – can be traced back to a single Greek copy, and in fact it is quite unlikely.

[65] As mentioned above, the main Arabic translation was made by a disciple of the famous translator Ḥunayn b. Isḥāq and can therefore be dated back to around the middle of the 9th century. On the dating to around 800 of the *Vetus translatio*, see *supra* n. 50.

each image precedes the corresponding chapter, with its own title, but it does not fill a whole page (rather half, or even a third or a quarter of the page). In addition to the chapters from the Alphabetical Herbarium, Book I includes chapters from a copy of the treatise *De materia medica* in the original order, which the copyist marks as τοῦ Ἀναζαρβέως, "of the Anazarbian".[66] Yet precisely the chapter on *androsaimon* in Morgan M. 652 is marked as coming "from the Anazarbian" (Fig. 14). For Books II (on animals), III (on oils and related products) and IV (on trees), this manuscript "of the Anazarbian" is used in Morgan M. 652 as a supplement to an earlier alphabetical compilation, provided with very beautiful illustrations and of which no further evidence has come down to us. On the other hand, Book V of Dioscorides in the New York manuscript comes entirely, and with virtually no reworking, from this manuscript "of the Anazarbian", as do the two apocryphal treatises (*Alexipharmaca*, Book VI, and *Theriaca*, Book VII).[67]

Book V in the New York Dioscorides has only three illustrations, for the first three chapters: these illustrations probably come from another source as none of the other chapters are illustrated. On the other hand, it seems significant to point out that, as mentioned above, for Books VI and VII Morgan M. 652 features a page layout in which the image follows the corresponding chapter (Fig. 11). Moreover, in general, the illustrations "from the Anazarbian" in this manuscript are marked by a strong schematism and a very rudimentary appearance, reminiscent both of the image in the Yerevan fragment and, more generally, of those in *Ayasofya* 3704 but also, to some extent, of those in the only illustrated manuscript of the Latin translation (*Clm* 337).

7. Concluding remarks

All these observations point to the hypothesis that, as early as the last centuries of Antiquity (by the 6th century at the latest), there existed a Greek version of Dioscorides' *De materia medica* in the original order, containing illustrations that were probably rather stylised and rudimentary, following on from the corresponding chapter: this was probably a new edition of Dioscorides, in which the intention was to set down the text, which already circulated in a wide variety of forms. The New York manuscript and the Arabic translations (which all contain seven books) might lead us to believe that this occurred when Book VII was added

[66] This is a way of referring to Dioscorides, a native of Anazarba, Cilicia, which is found only in certain manuscripts.

[67] See Marie Cronier, "Un manuscrit méconnu du *De materia medica* de Dioscoride: New York, Pierpont Morgan Library, M. 652", *Revue des Études grecques* 125 (2012): 93–138.

(after Book VI)[68] but the truth is that nothing allows us to confirm this – we do not know, for example, whether the Yerevan fragment comes from a five-book or six- or seven-book form.

Finally, the Yerevan fragment is the only remnant of a manuscript of Dioscorides written around the 6th century, perhaps in an eastern region of the Byzantine world, whose text (insofar as a philological analysis of such a short excerpt is possible) is not clearly related to any other surviving copy, and neither is the illustration that appears on its recto. However, the highly stylised nature of the illustration and its layout are reminiscent of certain manuscripts of the Arabic translations of Dioscorides (those closest to their Greek or Syriac ancestors) and of one of the models used in 10th-century Constantinople to produce manuscript M. 652 in the Morgan Library (the manuscript "of the Anazarbian"). This fragment is therefore an additional element in the reconstruction of a Late Antique manuscript – undoubtedly an edition – of the original Greek form of Dioscorides with illustrations, the best evidence for which is to be found in the Arabic translations. Thus, even if Dioscorides' treatise as originally compiled in the second half of the 1st century was not illustrated, and even if the earliest illustrated manuscripts (Naples Dioscorides, 4th–5th century, and Vienna Dioscorides, early 6th century) feature a much altered form, we can now be certain that the original form was provided with illustrations – obviously stylised – no later than the 6th century.

[68] See Alain Touwaide, "Les deux traités de toxicologie attribués à Dioscoride : tradition manuscrite, établissement du texte et critique d'authenticité", in *Tradizione e ecdotica dei testi medici tardoantichi e bizantini. Atti del Convegno Internazionale, Anacapri 29-31 ottobre 1990*, ed. Antonio Garzya (Napoli: D'Auria, 1992), 291–335, with previous bibliography.

Les utilisations des armoises (*Artemisia* L.) dans le monde gréco-romain à la lumière des connaissances chimico-médicales actuelles

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/ Abstract

Les plantes médicinales utilisées dans l'Antiquité constituent un univers privilégié pour les études multidisciplinaires et interdisciplinaires. Le genre *Artemisia* L. en est un exemple lumineux. Plantes d'importance dans l'Antiquité, les armoises sont aujourd'hui le sujet de nombreuses recherches, entre autres, dans les traitements des désordres gynécologiques et du paludisme. En herborisant dans les textes médicaux, grecs et latins, nous pouvons faire ressortir le fait que les recherches pharmacologiques actuelles permettent d'éclairer les utilisations des armoises dans les textes antiques. Ces herbes amères, dont plusieurs noms vernaculaires depuis l'Antiquité ainsi que l'épithète générique actuelle doivent leurs noms à la déesse Artémis, ont des utilisations phytothérapeutiques, entre autres, en gynécologie, qui furent ininterrompues depuis plus de deux millénaires. Autant que la correspondance soit possible entre les mentions antiques et la classification botanique actuelle, les plantes les plus employées dans le monde médical gréco-romain correspondent le plus souvent à des espèces du genre *Artemisia*, à partir desquelles des principes actifs ayant de réelles efficacités thérapeutiques ont été découverts.

Medicinal plants used in Antiquity constitute a privileged field for multidisciplinary and interdisciplinary studies. The genus Artemisia *L. is a striking example. Highly valued in Antiquity, mugworts are today the focus of numerous investigations, particularly in the treatment of gynecological disorders and malaria. By herbalizing*

in Greek and Latin medical texts, we can highlight the fact that current pharmacological research helps to shed light on the uses of mugworts in ancient texts. Several of their vernacular names, dating back to Greco-Roman Antiquity, as well as their current generic epithet, derive from Artemis, the virgin goddess who protected women. It is, therefore, unsurprising that they have had gynecological applications in phytotherapy for over two millennia. As far as a correspondence is possible between ancient references and modern botanical classification, the plants most used in the Greco-Roman medical world often correspond to species of the genus Artemisia*, from which active principles with proven therapeutic efficacy have been discovered.*

/ Keywords

Artemisia L.; Artemis; Ancient and current phytotherapy; Secondary metabolites; Gynecology; Malaria.

Depuis la plus haute Antiquité, plusieurs espèces d'armoise se sont imposées dans les phytothérapies du monde entier.[1] Ces plantes, caractérisées par leur amertume, ont été classées académiquement dans le genre *Artemisia* L. en 1753. Leurs feuilles finement découpées et leurs petits capitules floraux n'ont cessé d'être utilisées dans les pharmacopées traditionnelles à travers les siècles. En outre, depuis le XX^e^ siècle et surtout les dernières décennies, leur composition chimique et leurs propriétés biologiques font l'objet de nombreuses études.

Au XIII^e^ siècle, le *Diz de l'erberie* du poète français Rutebeuf célèbre ainsi l'armoise : « Sous vos pieds la foulez, la meilleure herbe qui soit dans les quatre parties du monde, c'est l'armoise. Les femmes s'en ceignent le soir de la Saint-Jean, et en font des chapeaux sur leurs têtes et disent que la goutte ni vertige ne les peuvent prendre ni en tête ni en bras, ni en pied, ni en main. Mais je m'émerveille quand leurs têtes ne se brisent pas et que leurs corps ne se rompent pas en deux, tant l'herbe a de vertus en soi ».[2]

Plus tard, au XIX^e^ siècle, Frédéric Mistral, écrivain provençal, consigne, dans une de ses œuvres, un proverbe qui circule toujours en Provence : « Si tu savais la vertu de l'artémise, tu en garnirais l'ourlet de ta chemise ».[3]

1. Les armoises du monde antique

Divers membres du genre *Artemisia* L. tel que nous le connaissons dans la classification linnéenne, sont présents dans les textes médicaux antiques. Les descriptions, les noms et les sy-

[1] Concernant l'utilisation thérapeutique d'*Artemisia absinthium* L. dans l'Égypte antique et dans la Bible, voir par exemple Dirk Lachenmeier, « Wormwood (*Artemisia absinthium* L.) – A curious plant with both neurotoxic and neuroprotective properties? », *Journal of ethnopharmacology* 131, no. 1 (2010) : 224–227.

[2] Texte cité par Pierre Lieutaghi, *La plante compagne. Pratique et imaginaire de la Flore sauvage en Europe occidentale* (Genève : Conservatoire et jardins botaniques de la Ville de Genève, 1991), 151 ; Rutebeuf, *Diz de l'erberie* (Paris : Jubin, 1839), vol. 1, 257.

[3] *Se sabiés li vertu de l'artemiso, n'en garniriés l'orle de ta camiso*, Frédéric Mistral, *Lou Tresor dou felibrige* (Raphèle-les-Arles : PyréMonde, éd. des Régionalismes, 1878), vol. 1, 145.

nonymes ainsi que les propriétés que les auteurs antiques ont attribuées à ces plantes, ont permis aux chercheurs (et parmi eux Suzanne Amigues, Jacques André, et Guy Ducourthial) d'établir des correspondances avec les espèces que nous reconnaissons actuellement, même si, il faut le rappeler, les identifications des plantes antiques peuvent rester incertaines.[4]

Diverses armoises, absinthes, génépis ont aussi chez nous des résonnances particulières, des « recettes de grand-mères » pour les règles à « la fée verte », le fameux alcool d'absinthe des artistes du XIX^e^ siècle,[5] en passant par la liqueur de génépi des montagnes.

Ces végétaux sont présents dans le monde antique (et dans la littérature médicale et botanique de cette époque) où ils ont d'autres résonnances. Il nous a paru intéressant d'analyser comment les médecins, les botanistes et les encyclopédistes de l'Antiquité traitaient de ces végétaux qui ont donné lieu à des croyances populaires, mais qui occupent encore aujourd'hui les scientifiques (biologistes, chimistes et médecins). En étudiant ce taxon, nous tenterons de montrer également en quoi les connaissances actuelles permettent d'éclairer l'emploi de ces « plantes d'Artémis » et qu'une collaboration entre botanistes, pharmacologues et antiquisants ne peut que créer une synergie des plus intéressantes.

A. Identité

Les armoises appartiennent à la vaste famille des Astéracées. Elles sont, à vrai dire, des plantes assez discrètes que nous pouvons pourtant croiser facilement dans les champs. Elles n'attirent pas le regard par une floraison spectaculaire, quelle que soit l'espèce, loin de là : leurs fleurs sont groupées en capitules très petits et ont peu d'éclat, verdâtres, jaunâtres ou grisâtres.[6] On les remarque un peu plus pour leurs feuilles, en général profondément découpées en lanières plus ou moins nombreuses et plus ou moins étroites, et offrant, selon les espèces, des nuances de couleur : vert blanchâtre ou gris cendré,[7] vert grisâtre,[8] et même vert foncé en dessus et gris argenté en dessous.[9] Mais dès les premiers textes médicaux, les armoises sont bien présentes dans les recettes composées et parmi les simples. Le *Corpus hippocratique* connaît les plantes du genre *Artemisia* sous les noms *artemisia* (ἀρτεμισία), *apsinthion* (ἀψίνθιον) et peut-être aus-

[4] Pour les armoises, voir Jacques André, *Les noms des plantes dans la Rome antique* (Paris : Les Belles Lettres, 1985), Guy Ducourthial, *Flore magique et astrologique de l'Antiquité* (Paris : Belin, 2003), et les identifications de Suzanne Amigues (éd.), *Théophraste. Recherches sur les plantes*, 5 vol. (Paris : Les Belles Lettres, 1988–2006).

[5] La liqueur d'absinthe était une boisson très en vogue au XIX^e^ siècle. On peut citer deux tableaux qui illustrent ce fait : *Dans un café*, dit aussi *l'absinthe*, de Degas (1875–1876, Musée d'Orsay) et *Le buveur d'absinthe de Manet* (1859, Ny Carlsberg Glyptotek, Copenhague).

[6] Paul-Victor Fournier, *Dictionnaire des plantes médicinales et vénéneuses de France* (Paris : Omnibus, 2010), 98–99.

[7] L'absinthe (*Artemisia absinthium* L.).

[8] La petite absinthe (*Artemisia pontica* L.).

[9] L'armoise commune (*Artemisia vulgaris* L.).

si *abrotonon* (ἀβρότονον).[10] Bien plus tard, Galien, au IIe siècle de notre ère leur attribue des propriétés et encore Cassius Felix, médecin africain du Ve siècle ap. J.-C.[11] Si discrètes et aussi peu colorées soient-elles, les armoises ont donc traversé les siècles, et pas seulement ceux de la période antique, comme nous le verrons. Même si les identifications précises sont parfois difficiles, nous pouvons retrouver dans les textes anciens quelques espèces qui appartiennent à ce vaste genre des armoises. En effet, dans le monde, il en existe plus de deux cents espèces dont beaucoup ont d'ailleurs une utilisation thérapeutique dans leur pays d'origine.[12]

Chez nos auteurs, nous pensons donc trouver l'absinthe, la grande, *Artemisia absinthium* L. (*apsinthion* en grec et *absinthium* en latin) et la petite, *Artemisia pontica* L. (*apsinthion pontikon* en grec et *absinthium ponticum* en latin) ainsi que plusieurs armoises dont en particulier l'armoise commune *Artemisia vulgaris* L., l'armoise arborescente *Artemisia arborescens* L. toutes deux se cachant sous le nom *artemisia* en grec et en latin. En Grèce, ce phytonyme désigne plutôt l'armoise arborescente et à Rome, l'armoise commune.[13] On reconnaît encore dans les textes, l'armoise des champs *Artemisia campestris* L., dont le nom antique est parfois accompagné de l'adjectif *leptophyllos*, « aux feuilles minces ». C'est effectivement ce qui la différencie des précédentes. Est bien présente aussi la sémentine, ou armoise maritime, *Artemisia maritima* L. que l'on a pensé reconnaître chez les auteurs grecs sous les noms *artemisia*,[14] *apsinthion thalassion* (ἀψίνθιον θαλάσσιον),[15] *ambrosia* (ἀμβροσία),[16] *seriphon* (σέριφον)[17] ou encore *santonikon* (σαντονικόν).[18] Chez les auteurs latins, on l'a vue sous plusieurs phytonymes : *artemisia*,[19] *absinthium marinum*,[20] *absinthium gallicum*,[21] *absinthium santonicum*,[22] *seriphum*.[23]

La plante qui se dissimule sous les noms *abrotonon* en grec et (*h*)*abrotonum* en latin est plus mystérieuse et les chercheurs ne sont pas tous d'accord. Il est très probable que cette

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[10] L'identification des plantes qui se cachent sous ces phytonymes avec des espèces du genre *Artemisia* est notamment l'œuvre de Suzanne Amigues, disparue lors de l'été 2022 et à qui nous souhaitons rendre hommage.

[11] Les références précises aux textes anciens sont fournies et discutées *infra*.

[12] Fournier, *Dictionnaire des plantes*, 99.

[13] Amigues, *Recherches sur les plantes*, vol. 1, 97 n. 18.

[14] Par exemple : Dsc., *MM* III, 114.

[15] Par exemple : Dsc., *MM* III, 23.5. Sous l'*apsinthion thalassion* de Dioscoride, on a parfois vu une autre plante : cette armoise qui, selon Dioscoride pousse en Cappadoce, est peut-être l'*A. santonicum* L. (Amigues, *Recherches sur les plantes*, vol. 3, 154 n. 23). Ailleurs que chez Dioscoride, elle correspond probablement à *A. maritima* L.

[16] Par exemple : Dsc., *MM* III, 114.

[17] Par exemple : Dsc., *MM* III, 23.5 ; Gal., *SMF* IX, 18 (XII, 119 K.).

[18] Par exemple : Dsc., *MM* III, 23.6 ; Gal., *SMF* VI, 1 (XI, 804–806 K.).

[19] Par exemple : Plin., *HN* XXVII, 28.

[20] Par exemple : Plin., *HN* XXVII, 53.

[21] Par exemple : Marcell., *Med.* XV, 86.

[22] Par exemple : Plin., *HN* XXVII, 45 ; Marcell., *Med*. XXVIII, 31.

[23] Par exemple : Plin., *HN* XXVII, 53 ; Marcell., *Med*. XXVIII, 8.

Fig. 1. Grande absinthe (*Artemisia absinthium* L.), Serre-Chevalier (Hautes Alpes, France). © V. Bonet.

plante dont Dioscoride et Galien[24] exposent une plante femelle et une espèce mâle, soit l'armoise arborescente *A. arborescens*. Nous suivons ici l'identification de S. Amigues qui semble, selon nous, mieux correspondre aux diverses descriptions et indications qui concernent la plante, dans l'Antiquité ou aujourd'hui, plutôt que la santoline (pour l'espèce femelle) et l'aurone (pour l'espèce mâle) que propose J. André.[25]

B. Les plantes d'Artémis

À notre époque toutes les plantes que nous avons évoquées sont liées par la classification de Linné qui leur a attribué le même genre, *Artemisia*. Dans l'Antiquité, les armoises pour lesquelles on a proposé une identification sont aussi réunies par leurs noms, pour une grande part d'entre elles du moins. L'armoise commune, l'armoise arborescente, l'armoise des champs et l'armoise maritime se retrouvent sous le nom *artemisia* (en grec ou en latin), « herbe d'Artémis » et sous d'autres synonymes qui évoquent également la vierge chasseresse.[26] Si Dioscoride, par exemple, évoque l'armoise maritime (ou sémentine) sous le nom *ambrosia*, il ajoute qu'elle s'appelle aussi *artemisia*. On ne peut pas ne pas remarquer non plus que le nom grec *ambrosia* donne à la plante un aspect divin en renvoyant à l'ambroisie, nourriture des dieux.

Abrotonon/habrotonum cache aussi peut-être l'armoise arborescente, on l'a vu. Pline et Dioscoride ne font pas le lien entre cet *abrotonon /habrotonum* et les plantes appelées *artemisia* mais il n'est pas rare que les auteurs (et surtout Pline) traitent de la même plante dans deux rubriques différentes et sous deux noms différents sans forcément s'en rendre compte.

L'absinthe (*apsinthion*/*absinthium*) n'a, ni en grec ni en latin, de nom qui la rattache à Artémis mais un lien est fait entre l'armoise et l'absinthe à travers l'armoise maritime qui s'appelle parfois en latin *absinthium maritimum* autant que *artemisia maritima*. D'autre part, Pline l'Ancien établit une analogie entre l'armoise (*Artemisia vulgaris, A. arborescens* et *A. campestris*) et l'absinthe par l'intermédiaire d'une comparaison : « <L'armoise>, dit-il, a de nombreux rejets, comme l'absinthe, avec des feuilles plus grandes et plus grasses ».[27] Galien consacre le premier chapitre du livre 6 de son traité des *Simples* aux deux plantes et l'intitule « Sur l'*abrotonon*, l'*apsinthion* et leurs espèces ».[28] D'ailleurs, dans la tradition pharmacologique pseudo-galénique, on considérait que l'*abrotonon* (c'est-à-dire une armoise) pouvait

[24] Dsc., *MM* III, 24 ; Gal. *SMF* VI, 1 (XI, 804 K.).

[25] Amigues, *Recherches sur les plantes*, vol. 1, 97 n. 18 ; André, *Noms des plantes*, 115 voit dans l'espèce femelle la santoline qui n'appartient pas au genre *Artemisia* et dans l'espèce mâle, une autre armoise, l'aurone ou citronnelle, *Artemisia abrotonum* L. Selon Suzanne Amigues, on ignore si l'Antiquité connaissait la citronnelle.

[26] On trouve notamment : *Dianaria herba, Dianae radix, Ephesia, Parthenis, Parthenicon, Toxotis, Toxobolus*.

[27] Plin., *HN* XXV, 73 : *Est autem fructicosa, maioribus foliis pinguibusque*.

[28] Gal., *SMF* VI, 1 (XI, 798–807 K.) : Περὶ ἀβροτόνου τε καὶ ἀψινθίου καὶ τῶν ἑκατέρου εἰδῶν. Pour ce qui est de ce passage du traité des *Simples* de Galien, on peut consulter maintenant Caterina Manco, *Les livres VI à VIII du traité des* Simples *de Galien. Tradition du texte et traduction annotée* (PhD diss., Université Paul-Valéry Montpellier 3/Università di Bologna, 2020), 363–370.

Fig. 2. Jeune pousse d'absinthe (*Artemisia absinthium* L.), Névache (Hautes Alpes). © V. Bonet.

être utilisé à la place de l'*apsinthion* (l'absinthe).[29] Le Ps.-Dioscoride grec (III, 24) affirme d'ailleurs que l'*abrotonon* est aussi dit *apsinthion.* Donc toutes ces plantes forment bien, d'une manière ou d'une autre, un groupe à part, une « famille » (à ne pas entendre au sens actuel en botanique, bien sûr) chez les Anciens, comme chez nous.

Dans l'Antiquité, elles sont aussi liées par leurs propriétés communes. Dans les textes médicaux grecs et latins, elles sont toutes amères,[30] échauffantes, diurétiques, purgatives et agissent notamment en urologie, en gynécologie, et comme antidote contre les poisons et/ou les venins et pour chasser les bêtes de toute sorte. Surtout, ce sont toutes des plantes des femmes. L'absinthe (*Artemisia absinthium* et *Artemisia pontica*), la seule qui justement ne célèbre pas Artémis par ses *noms* gréco-romains, est un peu à part : bien que présente parmi les plantes gynécologiques, son action dans ce domaine se limite souvent, excepté chez Hippocrate,[31] à son pouvoir emménagogue. D'ailleurs, toutes les plantes qui portent un nom qui renvoie à Artémis (et notamment les armoises) ont, dans l'Antiquité, une utilisation en gynécologie. Ce pouvoir est logique, dans les mentalités antiques : la déesse réconforte les femmes en travail dans les douleurs de l'enfantement,[32] et favorise la délivrance. Françoise Gaide explique ainsi ces liens entre la divinité et les plantes : « Un certain nombre de noms renvoient à Artémis, dont la mission, en dehors de la chasse, était de porter secours aux femmes, tant en régulant leur cycle qu'en les assistant dans leurs accouchements. La première action qu'a accomplie Artémis-Diane dès sa naissance est un accouchement : elle est née un peu avant son frère jumeau et à peine sortie du ventre de sa mère, elle l'a aidée à mettre au monde le dieu Apollon. Plusieurs plantes étaient donc considérées comme des cadeaux d'Artémis, vierge farouche,

[29] Ps.-Gal., *Suc.* XIX, 726 K. L'auteur du traité pseudo-galénique *Succédanés* propose en effet une liste de 369 substances d'origine végétale, animale ou minérale, arrangées par ordre alphabétique : pour chacune des substances citées est proposé un succédané ou substitut. Alain Touwaide, qui a étudié ce texte, souligne non seulement que l'*apsinthion* peut être remplacé par *abrotonon*, mais aussi que le *santonikon* peut être remplacé par *abrotonon*. Voir Alain Touwaide, « *Quid pro Quo* : Revisiting the Practice of Substitution in Ancient Pharmacy », in *Herbs and Healers from the Ancient Mediterranean through the Medieval West*, éd. Anne Van Arsdall and Timothy Graham (London : Routledge, 2012), 24–25.

[30] Cette amertume est caractéristique des armoises. Elles appartiennent à la cohorte des toniques-amères à vocation digestive, dans la médecine populaire de toutes les époques. L'absinthe, en particulier, est d'une amertume proverbiale (Fournier, *Dictionnaire des plantes*, 100).

[31] Hippocrate propose de nombreuses utilisations gynécologiques de la plante, par exemple comme émollient pour l'utérus ou pour les mauvaises positions de cet organe : Hp., *Nat.Mul.* VIII, 1 (VII, 322 L.) ; Hp., *Nat.Mul.* XXXII, 95 (VII, 364 L.) ; *Mul.* LXXIV (VIII, 154–160 L.).

[32] Voir par exemple *Hymne orphique* (Orphée, *Hymnes* 36.4) : « Réconfort dans les douleurs, qui ne connaît pas elle-même de douleur » ; et Callimaque, *Hymne à Artémis*, v. 20–25 : « J'aurai affaire aux cités des hommes seulement quand, sous les douleurs aiguës de l'accouchement, les femmes accablées [m'] appelleront comme soutien, [femmes] auxquelles les Moires m'ont assigné, dès ma naissance, de porter assistance, parce que ma mère, et en m'enfantant et en me portant, ne souffrit pas », traduction de Frédéric Trajber, communication personnelle. La mère d'Artémis, Léto, est aussi une divinité de la parturition. Cfr. Yvette Morizot, « L'accouchement : un passage dangereux sous la protection d'Artémis », *Bulletin de correspondance hellénique* 134, no. 2 (2010) : 463–470.

haïssant les hommes, à ses protégées, les femmes ».[33] D'une manière ou d'une autre donc, les auteurs médicaux antiques réunissent aussi les plantes que nous, aujourd'hui, et depuis Linné, nous classons au sein d'un même genre : *Artemisia*.

2. Les propriétés des armoises : des découvertes antiques aux recherches actuelles

Les Anciens voyaient dans les armoises et les absinthes des plantes médicinales exceptionnelles. Pline l'Ancien dit de l'absinthe, par exemple : « Il y a accord général sur l'usage de cette plante très facile à reconnaître et d'une rare utilité ».[34]

De très nombreuses publications scientifiques récentes[35] soulignent l'importance des espèces du genre *Artemisia* en raison de leur composition chimique et de leur potentiel pharmacologique. De plus, l'attribution du prix Nobel de médecine en 2015 à la Chinoise Youyou Tu pour l'extraction à partir d'*Artemisia annua* de l'artémisinine, molécule efficace dans le traitement du paludisme,[36] a suscité un regain d'intérêt pour les espèces congénériques telles que *Artemisia absinthium* et *A. vulgaris*.

Dans un deuxième temps, nous avons donc étudié les propriétés médicinales que les Anciens accordaient aux armoises. En nous appuyant sur les textes médicaux, d'Hippocrate à Cassius Felix, en passant par Pline, Dioscoride et Galien, nous pouvons proposer l'idée que les Anciens ont fait preuve d'intuitions, de tâtonnements, d'essais qui sont autant de formes d'apprentissage, mais aussi d'observations intelligentes que nos moyens techniques actuels ont souvent permis de confirmer. La première constatation est que les armoises que les spécialistes, comme J. André, G. Ducourthial et S. Amigues, ont reconnues dans les textes antiques sont souvent celles à partir desquelles les pharmacologues actuels extraient les molécules au plus grand potentiel thérapeutique : l'empirisme antique, dont certaines traditions étaient certainement héritées de la préhistoire, pouvait présenter une certaine efficacité bien éloignée d'une simple utilisation au hasard.

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[33] Françoise Gaide, « Les noms des "plantes" des femmes dans les textes médicaux latins. Lexicologie et ethnologie », in *Structures lexicales du latin*, éd. Michèle Fruyt et Claude Moussy (Paris : Presses de l'Université de Paris-Sorbonne, 1996), 86.

[34] Plin., *NH* XXVII, 45 : *De usu eius convenit, herbae facillimae atque inter paucas utilissimae*. Nous avons choisi de traduire l'adjectif *facillimae* par « très faciles à reconnaître », étant donné que le plante est très courante. Mais l'adjectif signifie peut-être aussi qu'elle est très facile à utiliser.

[35] Plus de 110.000 publications quand on effectue la recherche avec « *Artemisia* » sont répertoriées dans Google Scholar depuis 2010. Par exemple : Halina Ekiert et al., « *Artemisia* Species with High Biological Values as a Potential Source of Medicinal and Cosmetic Raw Materials », *Molecules* 27, no. 19 (2022) : 6427 ; Halina Ekiert et al., « Significance of *Artemisia vulgaris* L. (Common Mugwort) in the History of Medicine and Its Possible Contemporary Applications Substantiated by Phytochemical and Pharmacological Studies », *Molecules* 25, no. 19 (2020) : 4415.

[36] Dominique Mazier et Marc Thellier, « Youyou Tu, de Mao Zedong au Prix Nobel – Prix Nobel de Médecine 2015 : William C. Campbell, Satoshi Ōmura et Youyou Tu », *Médicine/Sciences* 32, no. 1 (2016) : 106–109.

Ainsi quatre des six armoises évoquées précédemment, à savoir, *A. absinthium*, *A. vulgaris*, *A. arborescens* et *A. campestris* sont considérées, parmi les nombreuses espèces de ce genre, comme les plus prometteuses en termes d'applications médicales.

Il est vrai que, quelquefois, les propositions des auteurs médicaux de l'Antiquité sur les armoises et les absinthes paraissent s'éloigner d'une rationalité stricte et pure mais il faut tenir compte du fait que, en ce qui concerne la transmission des connaissances médicales, les recettes voyagent par tradition, d'une œuvre à l'autre, d'un auteur ancien à l'autre, sans forcément avoir été essayées.[37] De plus, le genre et le statut de l'œuvre considérée ont de l'importance sur ce point. Les armoises ont toujours fait parties des recettes de la médecine populaire traditionnelle. Ainsi, s'agissant des armoises, c'est chez Pline l'Ancien et chez le Ps.-Apulée que l'on trouve des recettes magiques : les armoises en amulette sur soi protègent des drogues mauvaises, de toutes les bêtes et aussi du soleil[38] et, si on les met dans la maison, elles éloignent les mauvais esprits (*demonia*) et le mauvais œil.[39] Un rameau d'armoise arborescente placée sous l'oreiller est aphrodisiaque et la plante est très efficace contre les maléfices qui causent l'impuissance (*contra omnia veneficia quibus coitus inhibeatur*).[40] Enfin, Pline et le Ps.-Apulée indiquent le pouvoir des armoises pour lutter contre la fatigue sur le voyageur qui en porte sur lui.[41] Pline prend de la distance, par rapport aux informations qu'il rapporte à l'aide d'expressions verbales comme *negant*,[42] *negatur*,[43] ou *aiunt*,[44] « on dit que ». Il ne reprend pas forcément ces recettes magiques à son compte, mais sacrifie à son projet d'exhaustivité qui le pousse à ne rien omettre, même les superstitions de la médecine populaire.[45] Cependant, la dernière pratique magique, une amulette destinée à développer le pouvoir anti-fatigue de l'armoise ne nous étonne pas tant que cela quand on sait que l'armoise commune ou arborescente ainsi que l'absinthe sont réellement toniques et stimulantes.[46] En tout cas, après Pline, ces usages traditionnels ont traversé les siècles, comme le montre P. Lieutaghi : Macer Floridus, au

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[37] Pour ce qui est de la transmission des recettes pharmaceutiques dans l'Antiquité et de la transmission du savoir pharmacologique en général, on peut consulter Laurence Totelin, *Hippocratic Recipes. Oral and Written Transmission of Pharmacological Knowledge in Fifth- and Fourth- Century Greece* (Leiden/Boston : Brill, 2009) et Daniela Fausti, « L'eredità di Ippocrate nella farmacologia. I diversi approci nella medicina di età imperiale », in *Ippocrate e gli altri*, éd. Daniela Manetti, Lorenzo Perilli et Amneris Roselli (Roma : École française de Rome, 2022), 363–381.

[38] Plin., *HN* XXV, 130.

[39] Ps.-Apul., *Herb*. 10.

[40] Plin., *HN* 21, 162.

[41] Plin., *HN* XXVI, 150 ; Ps.-Apul., *Herb*. 10.

[42] Plin., *HN* XXV, 130.

[43] Plin., *HN* XXVI, 150.

[44] Plin., *HN* XXI, 162.

[45] Sur ce point voir les nombreux travaux de Patricia Gaillard-Seux ainsi que Valérie Naas, *Le projet encyclopédique de Pline l'Ancien* (Rome : École Française de Rome, 2002) et Valérie Bonet, *La pharmacopée végétale d'occident dans l'œuvre de Pline l'Ancien* (Bruxelles : Latomus, 2014).

[46] Pierre Delaveau et al., *Secrets et vertus des plantes médicinales* (Paris : Selection du Reader's Digest, 1985), 43, 64.

X^e–XI^e siècle affirme « de cette armoise, qui la portera sur soi en chemin, ne se fatiguera point [...] et toutes diableries s'en fuient du lieu où elle est ».[47] Et pendant longtemps, on a mis des feuilles d'armoise dans les souliers pour devenir infatigable.[48] Dans le département français de l'Orne au XIX^e siècle, on mettait dans la maison une couronne d'armoise cueillie à la Saint-Jean pour préserver la maison de la foudre et des voleurs.[49]

Néanmoins, la collaboration avec les sciences biologiques et médicales permet assez souvent de confirmer les découvertes et les emplois des Anciens dans le cas des armoises. Ces plantes, liées très anciennement à la mythologie, ont en fait une réalité médicinale.

D'ailleurs, la majorité des médicaments a pour origine des molécules extraites des plantes.

La quasi-totalité des plantes sont immobiles, fixées, enracinées dans le sol. Elles ne peuvent donc fuir comme la plupart des animaux pour échapper aux stress, qu'ils soient biotiques (virus, bactéries, champignons, insectes, herbivores vertébrés ou encore d'autres plantes) ou abiotiques (température, salinité, manque ou excès d'eau, rayonnement solaire, carences nutritives, vent). Les plantes sélectionnées au cours de l'évolution sont celles qui ont développé la capacité de produire, entre autres, des métabolites secondaires spécifiques.[50] Ce sont le plus souvent eux qui protègent les plantes contre les attaques des herbivores (il peut aussi y avoir des protections physiques) et leur permettent de survivre aux stress biotiques et abiotiques et donc aux inconvénients majeurs liés à l'immobilité. Les études pharmacologiques ont montré que certains de ces composants (les métabolites secondaires) ont des propriétés antivirales, antibiotiques et antifongiques.[51] De plus, les molécules produites pour lutter contre l'herbivorie, qui agissent sur de nombreuses voies métaboliques des animaux, peuvent avoir de nombreuses propriétés pharmacologiques pouvant permettre de traiter des maladies non infectieuses dont des cancers.[52] Un raccourci nous permettrait presque de dire que c'est l'immobilité qui explique les propriétés médicinales des plantes !

Par ailleurs, de plus en plus de preuves suggèrent que la polyploïdie a joué et continue

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[47] Macer Floridus (peudonyme d'Oddo de Meug), *Simples médecines*, cité par Lieutaghi, *La plante compagne*, 152.

[48] Lieutaghi, *La plante compagne*, 152.

[49] Rolland, *Flore populaire*, cité par Lieutaghi, *La plante compagne*, 152.

[50] Les métabolites primaires sont directement impliqués dans le « fonctionnement normal » d'un organisme ou d'une cellule, croissance, développement et reproduction. Les métabolites secondaires ne sont pas directement impliqués dans les processus physiologiques fondamentaux d'un organisme.

[51] E.g., Rehab Hussein et Amira El-Anssary, « Plants Secondary Metabolites: The Key Drivers of the Pharmacological Actions of Medicinal Plants », in *Herbal Medicine*, éd. Philip Builders (IntechOpen, 2019), 11–30 (publication électronique : http://dx.doi.org/10.5772/intechopen.69412, dernier accès le 14 mars 2025). Matthias Erb et Daniel J. Kliebenstein, « Plant Secondary Metabolites as Defenses, Regulators, and Primary Metabolites: The Blurred Functional Trichotomy », *Plant Physiology* 184, no. 1 (2020) : 39–52.

[52] E.g., Sajad Fakhri et al., « Modulation of dysregulated cancer metabolism by plant secondary metabolites: A mechanistic review », *Seminars in Cancer Biology* 80 (2022) : 276–305. Jannat Sohail et al., « Pharmacological activities of *Artemisia absinthium* and control of hepatic cancer by expression regulation of TGFβ1 and MYC genes », *PLoS One* 18, no. 4 (2023) : 0284244 (publication électronique : https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0284244, dernier accès le 14 mars 2025).

Fig. 3. Armoise commune (*Artemisia vulgaris* L.), Corbel (Savoie, France). © V. Bonet.

de jouer un rôle important dans l'innovation phénotypique, la diversification des espèces, la facilitation de la biodiversité et l'adaptation à des environnements écologiques plus larges. La polyploïdie, évènement chromosomique qui consiste souvent en une ou plusieurs duplications de la totalité du génome, est commune chez les plantes et est un moteur d'évolution important. La plupart des Angiospermes (couramment appelés plantes à fleurs) ont connu au moins un évènement de polyploïdisation et, parmi eux, une grande majorité des armoises.[53] Chez les polyploïdes, une paire de gènes continue d'assurer les fonctions initiales tandis que leurs homologues sur lesquels la pression sélective est plus faible peuvent être impliqués dans la production de nouveaux métabolites conférant une meilleure capacité adaptative, entre autres, aux conditions environnementales. La polyploïdie peut expliquer l'apparition de nouveaux métabolites secondaires biologiquement efficaces et les différences biochimiques entre des plantes conspécifiques qui poussent dans des régions différentes.

A. La gynécologie : l'héritage d'Artémis

Dans l'Antiquité, les plantes du genre *Artemisia* sont des plantes gynécologiques. Qu'en est-il de l'héritage d'Artémis ? A-t-il résisté aux analyses chimico-médicales actuelles ?

Les textes grecs ou latins qui évoquent ces plantes sont remplis de recettes gynécologiques variées depuis Hippocrate jusqu'à Cassius Felix. Les armoises qui portent le nom de la déesse Artémis (armoise commune, armoise arborescente, armoise des champs) surtout sont présentées comme ayant un intérêt contre les affections gynécologiques.

De nombreux textes de l'Antiquité grecque provenant d'auteurs et de genres littéraires différents évoquent la déesse Artémis comme protectrice des femmes enceintes et des accouchements tout en la présentant comme une grande chasseresse et une « vierge farouche ».[54] En effet, Artémis est considérée comme étant la déesse du sang versé, qu'il s'agisse de celui des proies animales mais aussi de victimes humaines ou de celui « qui marque les grandes étapes de la vie féminine,[55] puberté, mariage, accouchement, et dans cette dernière épreuve, véritable irruption de sauvagerie, redoutée comme une tueuse ».[56]

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[53] Liying Cui et al., « Widespread genome duplications throughout the history of flowering plants », *Genome Research* 16, no. 6 (2006) : 738–749. Concernant les taux de polyploïdie chez les armoises, des recherches peuvent être effectuées dans la base de données GSAD (Genome Size in Asteraceae Database, https://www.asteraceaegenomesize.com/, dernier accès le 14 mars 2025).

[54] Voir Helen King, « Bound to Bleed: Artemis and Greek Women », in *Images of Women in Antiquity*, éd. Averil Cameron et Amélie Kuhrt (Detroit : Wayne State University Press, 1983), 109–127.

[55] Comme Apollon était aussi le dieu soleil personnifié, plus tardivement, sa sœur jumelle Artémis fut associée à la Lune et les Grecs anciens avaient établi une corrélation entre les phases de la Lune et les périodes menstruelles. Voir William Smith, *A Dictionary of Greek and Roman biography and mythology* (London : John Murray, 1871), 111 ; Pierre Waltz (éd.), *Anthologie grecque. Tome III ; Anthologie palatine, Livre VI* (Paris : Les Belles Lettres, 2002), 137, n. 3.

[56] Morizot, « L'accouchement », 463–470. Dans l'*Anthologie palatine*, de nombreuses dédicaces à Artémis

Le lien mythologique lexical est donc capital, qu'il soit une célébration religieuse première ou un moyen mnémotechnique à la disposition des hommes. Les armoises commune, arborescente ou « des champs » (*Artemisia* et *(h)abrotonum/abrotonon* dans les textes) dont Pline dit qu'elles sont « un remède spécifique des femmes »,[57] étaient employées pour faire des fomentations chaudes de l'utérus[58] mais aussi pour l'expulsion du placenta,[59] des fœtus morts[60] et des lochies.[61] Elles étaient prescrites pour tenter de soigner, en outre, la suffocation hystérique[62] en empêchant l'ascension de la matrice par exemple,[63] et l'inflammation de l'utérus[64] ainsi que le météorisme utérin ;[65] elles accéléraient l'accouchement,[66] ouvraient l'orifice utérin fermé[67] et étaient donc particulièrement bénéfiques pour l'utérus,[68] à tel point qu'elles luttaient contre la stérilité.[69] L'absinthe (*absinthium/apsinthion*) savait ouvrir l'utérus[70] et donc expulser les fœtus morts[71] mais était aussi donnée quand la matrice était mal placée, par exemple lorsqu'elle était trop oblique ou placée trop près de la hanche et déclenchait alors des douleurs.[72] Elle amollissait également l'orifice utérin[73] et luttait contre le météorisme utérin.[74]

Mais l'utilisation la plus importante de l'armoise et de l'absinthe, dans l'Antiquité, concerne la régulation menstruelle. Les recettes pour les règles ou pour « purger la matrice » sont présentes chez tous les auteurs, et à plusieurs reprises. Cette utilisation est liée à la vertu expulsive de ces plantes. Les auteurs les disent emménagogues[75] en général, et efficaces lorsque les règles coulent mal,[76] ou sont en retard,[77] ou même totalement absentes,[78] ou encore dou-

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ont été conservées, souvent faites par des jeunes filles avant ou au moment du mariage et des épouses avant, pendant ou après l'accouchement : par exemple épigrammes 201 et 202.

57 Plin., *HN* XXV, 73 : *quoniam privatim medeatur feminarum malis.*

58 Gal., *SMF* VI, 62 (XI, 840 K.).

59 Plin., *HN* XXVI, 159 ; Hp., *Nat.Mul.* XXXII, 32 (VII, 352 L.) ; Dsc., *MM* III, 113.2.

60 Plin., *HN* XXVI, 159.

61 Hp., *Mul.* LXXVIII (VIII, 176 L.).

62 Hp., *Mul.* CCI (VIII, 386 L.) ; Cass.Fel., LXXVII, 5.

63 Cass.Fel., LXXVII, 5.

64 Dsc., *MM* III, 113.2.

65 Sor., III, 32.

66 Hp., *Mul*. LXXVII (VIII, 170–172 L.).

67 Hp., *Superf.* XXXII (VIII, 500 L.) ; Dsc, *MM* III, 113.2.

68 Plin., *HN* XXVI, 159 (*artemisia*) et 161 (*habrotonum*).

69 Hp., *Nat.Mul.* CIX, 7 (VII, 424 L.) (fumigation).

70 Cass.Fel., LXXX, 5.

71 Cass.Fel., LXXX, 5.

72 Hp., *Nat.Mul.* VIII, 1 (VII, 322 L.).

73 Hp., *Nat.Mul*. XXXII, 95 (VII, 364 L.) ; *Mul.* LXXIV (VIII, 154–160 L.).

74 Sor., III, 32.

75 Plin., *HN* XXVI, 159 et 151 ; XXVII, 50 ; Hp., *Nat.Mul.* CIX, 1 (VII, 424 L.) ; *Mul.* LXXIV (VIII, 174 L.) ; Dsc., *MM* III, 113 ; Sor., III, 16 ; Cass.Fel., LXXX, 5.

76 Scrib.Larg., CVI, 1 ; Sor., III, 16.

77 Dsc., *MM* III, 24.2.

78 Hp., *Mul.* CXXXV (VIII, 306 L.).

loureuses.[79] Les plantes d'Artémis évacuent donc le sang utérin et Soranos est le seul à avouer que, de ce fait, elles peuvent être abortives si l'on choisit la bonne recette : l'armoise en composition avec d'autres plantes en bain de siège, et l'absinthe en injection ou en cataplasme.[80] Les armoises sont donc « des plantes du sang », du sang féminin, et le sont restées tout au long des siècles dans la médecine populaire, et l'une d'entre elles, l'armoise commune (*Artemisia vulgaris*), semble même l'indiquer à travers ses tiges d'un rouge vineux[81] pouvant rappeler un sang corrompu.

Force est de constater que les textes médicaux grecs les plus anciens (ceux du *Corpus Hippocratique*) sont ceux qui donnent le plus de recettes pour les maladies des femmes. Hippocrate ne propose même aucune autre indication que la gynécologie pour l'armoise arborescente quand il l'appelle *artemisia,* et, quand il lui donne le nom d'*abrotonon,* seule une maladie pulmonaire s'ajoute à ses vertus gynécologiques. Plus on avance dans le temps, plus on s'éloigne de l'influence du divin et d'Artémis, semble-t-il, car moins les maladies féminines occupent de place parmi les indications des plantes.[82] Et si, au début du II^e^ siècle ap. J.-C., le gynécologue Soranos prescrit volontiers l'armoise et l'absinthe, il les déconseille dans certains emplois (grossesse molaire et inflammation suivant une embryotomie, problème d'estomac des femmes enceintes,[83] par exemple) et met en garde contre certains de leurs effets.

Mais Artémis n'est pas la seule responsable de l'utilisation gynécologique du genre botanique *Artemisia*, certaines espèces de ce genre botanique font partie des rares « herbes d'Artémis » dont l'action gynécologique antique a une réalité scientifique.[84]

L'armoise commune, par exemple, présente une réelle activité oestrogénique.[85] Les préparations à base de cette plante, sont recommandées aujourd'hui pour le traitement des cycles menstruels irréguliers et des symptômes de la ménopause.[86] Ce sont exactement les prescriptions des Anciens (sous les expressions « retards des règles », « absence de règles », etc.). Ce

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[79] Sor., III, 16.

[80] Sor., I, 52 et 64.

[81] Lieutaghi, *La plante compagne*, 135–140. P. Lieutaghi a, d'autre part, appris d'informatrices haut-Provençales qu'aujourd'hui encore elles connaissent « l'artémise » comme plante des femmes et la conseille pour la « circulation du sang » chez la femme.

[82] Il faut néanmoins mettre de côté l'œuvre de Cassius Felix (V^e^ siècle de notre ère) qui ne parle de l'*artemisia* que pour son action en gynécologie. Toutefois il n'y a qu'une référence, dans le chapitre traitant de la suffocation hystérique (LXXVII, 5). Il donne une recette composée destinée à une fumigation pour libérer les menstrues, empêcher l'ascension de la matrice et la suffocation hystérique et contenant entre autres de l'armoise. Galien quant à lui consacre une notice à l'armoise (ἀρτεμισία) dans le livre VI de son traité des *Simples*, en précisant qu'elle est modérément utile lorsqu'elle est employée en fomentation sur l'utérus (Gal., *SMF* VI, 62 = XI, 840 K.).

[83] Sor., III, 38 et 39 ; IV, 13 ; I, 52.

[84] Voir par exemple Lieutaghi, *Le livre des bonnes herbes*, 85–88.

[85] Voir par exemple : Sang-Jun Lee et al., « Estrogenic flavonoids from *Artemisia vulgaris* L. », *Journal of Agricultural and Food Chemistry* 46 (1998) : 3325–3329.

[86] Manisha Nigam et al., « Bioactive Compounds and Health Benefits of *Artemisia* Species », *Natural Product Communications* 14, no. 7 (2019) : 1–17. Ekiert et al., « *Artemisia* Species », 6427.

sont les flavonoïdes présents dans les parties aériennes de la plante qui ont été évalués pour leur activité oestrogénique par des institutions scientifiques américaines et coréennes notamment.[87] En fait, certaines plantes, et les armoises en particulier, peuvent exprimer des propriétés oestrogéniques et interagir ainsi avec la fertilité des animaux ce qui permet de réduire la pression d'herbivorie. C'est donc un mécanisme de défense pour la plante. Pour terminer, on se hasardera à ajouter que des études assez récentes (2014) ont été faites sur l'activité anti-fertilité des feuilles d'armoise commune. On a mis en lumière un pouvoir d'anti-implantation de l'ovule fécondé à la muqueuse utérine.[88] Comment ne pas penser aux propriétés abortives que Soranos attribue à l'armoise et à l'absinthe et au pouvoir de « faire revenir les règles » que tous les auteurs anciens leur accordent ? Ces recettes emménagogues devaient assez souvent cacher des abortifs déguisés destinés à provoquer un avortement précoce.

Ainsi, toute proportion gardée, les recherches actuelles confirment les utilisations gynécologiques proposées par les textes médicaux antiques, et, d'une certaine manière, Artémis vit toujours dans les armoises que nous croisons sur le bord de nos chemins. Si les dieux meurent lorsqu'on cesse de prononcer leur nom, Artémis, grâce aux phytonymes, est toujours parmi nous !

B. Autres domaines pathologiques

Dans des spécialités médicales autres que la gynécologie, les observations des Anciens ont aussi été le plus souvent également confirmées, d'après les études qui ont été entreprises ces dernières années sur le genre *Artemisia*. Nous allons les évoquer mais sans les détailler cette fois. Le tableau ci-dessous montre que dans plusieurs domaines cités par les Anciens (respiration, digestion, hépatologie, urologie, psychiatrie, etc.), les armoises ont de réelles activités médicales. Les espèces correspondent parfois parfaitement : par exemple, c'est bien l'absinthe (*Artemisia absinthium*) qui stimule l'activité digestive et l'appétit, celle même que les médecins grecs et romains prescrivent pour favoriser la digestion et l'appétit et lutter contre les acidités gastriques et les vomissements. C'est l'armoise des champs (*Artemisia campestris*) qui a une action protectrice et antioxydante gastro-œsophagienne et qu'on utilise dans l'Antiquité contre les douleurs stomacales. Quelquefois, les espèces échangent leur rôle entre hier et aujourd'hui mais l'identification exacte des espèces des armoises antiques étant parfois difficile, ces différences ne sont pas forcément significatives.

[87] Ekiert et al., « Significance of *Artemisia vulgaris* L. », 4415.

[88] Afsar Shaik et al., « Antifertility activity of *Artemisia vulgaris* leaves on female Wistar rats », *Chinese Journal of Natural Medicines* 12 (2014) : 180–185.

Tab. 1. Applications médicales des armoises dans les textes antiques et correspondances trouvées dans les publications scientifiques récentes[89]

Domaines pathologiques	**Textes médicaux antiques**	**Études actuelles**
Appareil respiratoire	- toux (Plin., *abrotonum*) - orthopnée (Dsc., *abrotonon* ; Plin., *abrotonum*) - péripneumonie (Hp., Gal., *abrotonon*)	- activité bronchodilatatrice (*A. vulgaris*)
Appareil digestif	- aide la digestion (Plin., *absinthium,* Aret., *apsinthion*) - manque d'appétit (Dsc., *apsinthion*) - acidités (Plin., *absinthium*) - écœurement (Plin., Cass.Fel., *absinthium*) - vomissements et nausées (Dsc., *apsinthion*, Cass.Fel., *absinthium*) - gonflement de l'estomac (Cels., *absinthium*) - fortifie l'estomac (Plin., *absinthium*) - atonie de l'estomac (Plin., Cass.Fel., *absinthium*) - bénéfique pour l'estomac (Plin., *absinthium,* Gal., *apsinthion*) - douleurs stomacales (Dsc., *apsinthion*, Ps.-Apul., *artemisia campestris*)	- stimulation de l'activité digestive (*A. absinthium*) - stimulation de l'appétit (*A. absinthium*) - anti-ulcère (*A. absinthium, A. vulgaris*), A. campestris) - action protectrice gastro-oesophagienne et antioxydante sur l'estomac (*A. campestris*)

[89] Marimuthu Govindarajan et Giovanni Benelli, « *Artemisia absinthium*-borne compounds as novel larvicides: effectiveness against six mosquito vectors and acute toxicity on non-target aquatic organisms », *Parasitology Research* 115 (2016) : 4649–4661. Mohammed El-Amin Said et al., « *Artemisia arborescens* Essential Oil Composition, Enantiomeric Distribution, and Antimicrobial Activity from Different Wild Populations from the Mediterranean Area », *Chemistry & Biodiversity* 13, no. 8 (2016) : 1095–1102. Ikram Dib et Fatima Ezzahra El Alaoui-Faris, « *Artemisia campestris* L.: review on taxonomical aspects, cytogeography, biological activities and bioactive compounds », *Biomedicine & Pharmacotherapy* 109 (2019) : 1884–1906. Gaber El-Saber Batiha et al., « Bioactive Compounds, Pharmacological Actions, and Pharmacokinetics of Wormwood (*Artemisia absinthium*) », *Antibiotics* 9 (2020) : 353. Ekiert et al., « Significance of *Artemisia vulgaris* L. » ; Agnieszka Szopa et al., « *Artemisia absinthium* L.-Importance in the History of Medicine, the Latest Advances in Phytochemistry and Therapeutical, Cosmetological and Culinary Uses », *Plants (Basel)* 9, no. 9 (2020) : 1063. Bianca Ivanescu et al., « Analgesic and anti-inflammatory activity of *Artemisia* extracts on animal models of nociception », *Balneo and PRM Research Journal* 12 (2021) : 34–39. Ekiert et al., « *Artemisia* Species ». Nidal Jaradat et al., « Assessing *Artemisia arborescens* essential oil compositions, antimicrobial, cytotoxic, anti-inflammatory, and neuroprotective effects gathered from two geographic locations in Palestine », *Industrial Crops and Products* 176 (2022) : 114360 (publication électronique : https://www.sciencedirect.com/science/article/pii/S0926669021011250, dernier accès le 14 mars 2025). Javad Sharifi-Rad et al., « *Artemisia* spp.: An Update on Its Chemical Composition, Pharmacological and Toxicological Profiles », *Oxidative Medicine and Cellular Longevity* (2022) : 5628601 (publication électronique : https://onlinelibrary.wiley.com/doi/10.1155/2022/5628601, dernier accès le 14 mars 2025).

Foie	- maladies hépatiques (Cels., Cass.Fel., *absinthium ;* Gal., *apsinthion*) - jaunisse (Hp., *apsinthion*; Cels., Plin., *absinthium*) - affections aiguës du foie (Aret., *apsinthion*) - draine la bile (Plin., *absinthium,* Aret., *apsinthion*) - occlusion et obstruction hépatique (Cass.Fel., *absinthium*) - douleurs chroniques du foie (Dsc., *apsinthion*) - fistule du foie, pus (Aret., *apsinthion*)	- activité hépatoprotectrice (*A. absinthium*, *A. vulgaris*, *A. campestris*) - action antioxydante sur le foie (*A. campestris*)
Système urinaire et élimination	- diurétique (Dsc., Aret., *apsinthion*, Cels., Plin., *absinthium* ; Ps.-Apul., *artemisia)* et traite l'hydropisie (Dsc., *apsinthion*, Cass.Fel., *absinthium)* - strangurie (Dsc., *artemisia*, Plin., *artemisia, abrotonum*) - calculs (Dsc., *artemisia*, Plin., *artemisia*) - miction difficile (Dsc., *abrotonon*) - maladie aiguë des reins (Aret., *artemisia*)	- activité néphroprotectrice (*A. campestris*) - action antioxydante sur les reins (*A. campestris*) - diminue l'urée sérique, la polyurie et la protéinurie (*A. campestris*)
Spasmes et convulsions	- spasmes (Dsc., *abrotonon*) - convulsions (Plin., *abrotonon*) - tremblements (Ps.-Apul., *artemisia campestris)*	- activité antispasmodique (*A. vulgaris*)
Maladie mentale	- mélancolie chronique (Aret., *apsinthion*) - phrénitis (Aret., *apsinthion*)	- activité antidépressive (*A. absinthium*) - activité neuroprotectrice (*A. absinthium*) - activité contre les maladies neurodégénératives (A. arborescens) - activité contre le stress oxydatif cérébral (A. campestris)
Parasites internes	- vers (Plin., Cels., Cass.Fel., Ps.-Apul., *absinthium*) - vers ronds (Dsc., *ambrosia* (= *A. campestris*), Gal., *apsinthion*)	- activité antihelmintique[90] (*A. absinthium*, *A. vulgaris*) - activité antiprotozoaire[91] (*A. absinthium*)

[90] Helminthe est un ancien nom synonyme de vers parasites, il inclut les deux grands embranchements suivants : les nématodes (vers ronds) et les plathelminthes (vers plats). Les propriétés vermifuges de cette plante étaient déjà reconnues par les anciens Égyptiens et le nom vernaculaire de cette espèce en anglais « *wormwood* » ainsi que l'appellation d'un apéritif à base de vin et d'extraits de cette espèce, le vermouth, même si l'étymologie n'est pas totalement assurée ne sont pas sans rappeler cette caractéristique (Lachenmeier, « *Wormwood* (*Artemisia absinthium* L.) », 224 ; et https://www.etymonline.com/word/wormwood, dernier accès le 12 mars 2025).

[91] Protozoaire, nom donné à des eucaryotes généralement unicellulaires responsables de nombreuses maladies (notamment paludisme et certaines formes de dysenterie).

C. Des armoises insectifuges à la lutte contre le paludisme (Les armoises, des antipaludéens holistiques ?)

Le paludisme est induit par des parasites du genre *Plasmodium* transmis par des moustiques anophèles femelles à divers types de vertébrés dont l'homme. Les *Plasmodium* infectent les globules rouges et les font éclater de manière synchrone, induisant, indirectement, des accès de fortes fièvres. Ces fièvres se répètent, pour ne prendre en compte que les espèces qui étaient présentes en Europe, tous les deux jours pour *P. vivax*, il s'agit donc de fièvres dites tierces dans un comput inclusif. *P. malariae,* quant à lui, induit des fièvres quartes et *P. falciparum,* des fièvres tierces souvent irrégulières. Cette périodicité connue depuis l'Antiquité[92] permet de porter un diagnostic étiologique rétrospectif sans ambiguïté. Toutefois, lors de primo-infections ou de co-infections, la périodicité peut ne pas apparaître ; de ce fait, le nombre réel d'accès palustres est toujours largement sous-estimé. Le paludisme reste d'actualité, il fait actuellement partie des trois plus grands fléaux infectieux frappant l'humanité ; le dernier rapport de l'OMS, révèle qu'il y aurait eu en 2023 environ 263 millions de cas de paludisme dans le monde (et 597 000 décès principalement des enfants).[93] Les *Plasmodium* pouvant rapidement développer des résistances aux traitements antipaludiques, la recherche de nouvelles molécules présentant un rapport efficacité/toxicité le plus faible possible est constante dans ce domaine. De nombreux travaux s'intéressent, ces dernières années, aux plantes du genre *Artemisia*, comme le montre notamment l'attribution du prix Nobel en 2015. L'étude primée avait pour objet l'*Artemisia annua* L. (armoise annuelle) qui n'était pas présente autrefois sous nos latitudes et ne se trouve donc pas dans les textes antiques occidentaux : originaire du nord de la Chine,[94] elle a été introduite en Europe et en Afrique seulement au XX^{e} siècle. Elle occupe actuellement le devant de la scène pour ses propriétés antipaludéennes et cela d'autant plus que certaines recherches l'ont donnée comme potentiellement efficace pour prévenir

[92] Cette périodicité était d'ailleurs mentionnée aussi bien dans la littérature gréco-latine médicale et encyclopédique que profane ; par exemple : Hp., *Epid.* I, 11 (II, 670–678 L.). Outre la périodicité, les symptômes et la saisonnalité des fièvres paludéennes sont également fréquemment rapportées : Paul F. Burke, « Malaria in the Greco-Roman world: a historical and epidemiological survey », *Aufstieg und Niedergang der römischen Welt* 3, (1996) : 2252–2281 ; François Retief et Louise Cilliers, « Malaria in Graeco-roman times », *Classica: Proceedings of the Classical Association of South Africa*, 47, no. 25 (2004) : 127–137) ; Éric Faure, « Paludisme historique et sources narratives : quelles informations rechercher ? » in *Épidémies, épizooties*, éd. François Clément (Rennes : Presses universitaires de Rennes, 2017), 135–156.

[93] World malaria report 2024. (Geneva : World Health Organization, 2024), XVI–XVII et 12 (publication électronique : https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2024, dernier accès le 14 mars 2025).

[94] La description la plus ancienne du paludisme en Chine remonterait à 2700 ans avant J.-C. et la première mention connue de l'utilisation d'*Artemisia annua* L. contre cette maladie en Orient date du IV^{e} siècle après J.-C., le médecin Ge Hong décrivit alors les propriétés antipyrétiques de cette plante et préconisa de l'utiliser pour lutter contre les fièvres intermittentes (Élisabeth Hsu, « The history of qing hao in the Chinese materia medica », *Transactions of the Royal Society of Tropical Medicine and hygiene* 100, no. 6, (2006) : 505–508).

ou traiter la covid 19.[95] Dans certaines espèces d'*Artemisia* de nos régions qui, visiblement, étaient connues des Anciens, ont été trouvées des molécules aux propriétés antiplasmodiales, insecticides (stades larvaire et/ou imago) et insectifuges.[96] Elles pourraient donc agir à tous les niveaux de la lutte contre le paludisme, directement sur l'agent causal lui-même mais aussi sur son vecteur. Des études très récentes[97] ont démontré l'activité anti-malariale d'*A. vulgaris,* d'*A. maritima* et d'*A. absinthium.* Ces espèces ont aussi une action insecticide et insectifuge sur les moustiques, en particulier les deux premières.[98]

D'ailleurs dans un texte antique, un lien est peut-être même établi entre l'Artémis protectrice des femmes et le paludisme. L'auteur du court traité hippocratique intitulé *Maladies des jeunes filles* déclare qu'après des attaques de fièvres avec frissons, nommées erratiques,[99] les filles font, sur l'ordre de devins qui les trompent, des offrandes dispendieuses à Artémis.[100] Il faut aussi noter le lien entre Artémis et les zones humides incluant les marécages, attestée par une série d'épithètes cultuelles qui lui étaient attribuées dans diverses régions de Grèce.[101] Elle est aussi à rattacher au fait que l'association du paludisme aux marais était de notoriété publique au moins depuis l'époque d'Hippocrate.[102] De nos jours, il est bien connu que les conséquences d'une infection paludéenne se révèlent être statistiquement beaucoup plus graves chez les individus naïfs immunologiquement et chez les femmes enceintes même si au préalable, elles avaient développé une immunité concomitante. Les femmes gravides développent une tolérance immunitaire fœto-maternelle qui permet de limiter grandement les

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[95] Melissa Baggieri et al., « Antiviral, virucidal and antioxidant properties of *Artemisia annua* against SARS-CoV-2 », *Biomedicine & Pharmacotherapy* 168 (2023) : 115682 (publication électronique : https://www.sciencedirect.com/science/article/pii/S0753332223014804?via%3Dihub, dernier accès le 14 mars 2025). Article plus général sur le même thème : Fatiha El Babili et al., « Reflection on medicinal plants, especially antivirals and how to reconsider ethnobotany as an interesting way for health preservation », *African Journal of Pharmacy and Pharmacology* 15, no. 1 (2021) : 10–32.

[96] E.g., Vika Ichsania Ninditya et al., « *Artemisia vulgaris* efficacies against various stages of *Aedes aegypti* », *Veterinary World* 7 (2020) : 1423–1429 ; Bianca Ivănescu et al., « Secondary Metabolites from Artemisia Genus as Biopesticides and Innovative Nano-Based Application Strategies », *Molecules* 26, no. 10 (2021) : 3061.

[97] Pour les armoises en général : Ekiert et al., « *Artemisia* Species » ; sur l'absinthe en particulier : Abdullahi Muhammad Daskum et Godly Chessed, « Repository and curative antimalarial activities of *Artemisia absinthium* in mice experimentally infected with *P. berghei* (NK 65) », *Journal of Medicinal Plants Studies* 10, no. 1 (2022) : 47–53 ; et sur l'armoise commune : Ekiert et al., « *Artemisia* Species ».

[98] Le challenge étant de trouver des bio-insecticides le plus spécifique possible pour éviter de trop interférer avec le reste de l'entomofaune.

[99] L'adjectif *planētēs* (πλανήτης), « errant, erratique », qui qualifie les fièvres, pourrait renvoyer dans certains cas aux fièvres intermittentes. On le rencontre à plusieurs reprises dans le *Corpus hippocratique* : Hp., *Aph*. III, 22 (IV, 496 L.) et *Coac*. 571 et 582 (V, 716 et 720 L.).

[100] *Virg.* (VIII, 466–470 L.).

[101] Elizabeth Craik, « Malaria, Childbirth and The Cult of Artemis », in *Medicine and Markets in the Graeco-Roman World and Beyond: Essays on Ancient Medicine in Honour of Vivian Nutton*, éd. Laurence Totelin and Rebecca Flemming (Swansea : Classical Press of Wales, 2000), 95.

[102] Hp., *Aër*. VII et XXIV (II, 26–32 L. et II, 86–92 L.)

risques de rejet de l'embryon-fœtus, ce qui induit *de facto*, durant la grossesse, une plus grande susceptibilité générale aux maladies infectieuses. Les femmes enceintes impaludées (en particulier les primo-parturientes) peuvent fréquemment souffrir d'anémie parfois sévère, voire mortelle et les risques d'un retard de croissance *in utero* pour le fœtus, ainsi que d'un faible poids à la naissance, pour le nouveau-né, sont élevés. Dans les zones de transmission plus faible ou instable, le péril est encore plus grand, les futures mères peuvent succomber à un paludisme pernicieux et les accès de fièvres sont responsables d'avortements, d'enfants mort-nés et de prématurité.[103] Dans le passé, la fréquence de ces conséquences dramatiques chez les femmes enceintes ne pouvait échapper aux populations vivant dans les zones impaludées. Dans le traité hippocratique *Des maladies des femmes*, il est noté : « Si la femme enceinte a le corps en mauvais état, est bilieuse et souffrante, a de la fièvre par intervalles [...], les yeux ictériques,[104] si surtout elle a de la fièvre, il lui arrivera, après l'accouchement, d'avoir des lochies bilieuses et un enfant faible ».[105] Ainsi, Artémis présidant aux accouchements et pouvant être localement une déesse des marais, cette divinité devait donc probablement, être une déesse protectrice des femmes enceintes souffrant de cette parasitose, d'autant plus que, comme l'a souligné Élisabeth Craik,[106] les fièvres puerpérales qui sont en fait la conséquence d'une septicémie présentent des symptômes initiaux analogues à ceux pouvant être observés lors de la première phase du paludisme et que les signes cliniques plus avancés de l'infection bactérienne devaient sembler similaires à ceux observés lors des complications du paludisme.

Peut-on trouver des détails d'observation dans les emplois antiques des armoises qui peuvent être des prémices à une lutte contre le paludisme dont les Anciens ont d'ailleurs beaucoup souffert ?[107]

La première remarque que l'on peut faire est que les propriétés insecticides ou insectifuges de ces plantes étaient bien connues des Anciens : Pline et Dioscoride, suivant probablement une source commune, proposent des recettes contre les mites et, ce qui nous intéresse particulièrement : les moustiques.[108] Dioscoride donne la recette d'une huile faite avec de l'absinthe dont on s'enduit le corps, probablement pour ne pas être piqué.[109] Si Dioscoride a bien mené une vie de militaire, il a probablement été confronté au problème du paludisme.[110] Car les

[103] Megnha Desai et al., « Epidemiology and burden of malaria in pregnancy », *The Lancet infectious diseases 7*(2), 2007) : 93–104.

[104] Signes de troubles fonctionnels hépatiques pouvant résulter d'une infection paludéenne.

[105] Hp., *Mul*. I, 26 (VIII, 68–70 L.). La traduction en français est d'Émile Littré.

[106] Craik, « Malaria, Childbirth and The Cult of Artemis », 95.

[107] Sur les mentions et l'impact du paludisme dans l'Antiquité, voir Robert Sallares, *Malaria and Rome: a history of malaria in ancient Italy* (Oxford : Oxford University Press, 2002).

[108] Plin., *HN* XXVII, 52 ; Dsc., *MM* III, 23.4.

[109] Dsc., *MM* III, 23.4.

[110] Vivian Nutton dit que Dioscoride a pu servir en Syrie ou, moins probablement, en Égypte ou peut-être pour une courte période durant les guerres d'Arménie de 55 à 63. Voir Vivian Nutton, *La médecine antique* (Pa-

soldats étaient très souvent atteints de cette maladie lors des campagnes. On peut donc imaginer que cette huile répulsive était destinée à éviter la gêne causée par de nombreux insectes piqueurs et pouvait par là-même lutter contre des infections et parmi elles contre les infections paludéennes. Pline propose la même recette et ajoute que l'on peut aussi brûler la plante et l'utiliser en fumigation.[111] De plus, il affirme que l'armoise (commune ou arborescente) (*artemisia*) fait aussi fuir les « bêtes », sans plus de précision, si on la porte sur soi.[112]

Les médecins antiques mentionnent fréquemment de nombreux types de fièvres périodiques, outre les fièvres tierces et quartes, qu'il est possible de relier à des infections ou co-infections paludéennes.[113] Toutefois, parmi les indications des espèces d'armoise, peu de références concernent ces fièvres. Mais, Cassius Felix propose la petite absinthe (*Artemisia pontica*) contre la fièvre tierce en infusion.[114] Quant à l'*abrotonon/abrotonum*, Pline et Dioscoride le prescrivent contre les frissons.[115] Il faut, dans ce cas, utiliser sur le corps un onguent à base d'huile d'olive.[116] Or, outre la périodicité, la maladie se caractérise en particulier par des cycles typiques alternant fièvre, frissons, tremblements avec sueurs froides et transpiration intense ce qui n'avait pas échappé aux Anciens.[117]

On a récemment montré que, chez les patients atteints de paludisme chronique induit par *P. vivax*, la concentration de globules rouges infectés est jusqu'à 4000 fois plus élevée dans la rate par rapport au sang circulant.[118] Ces résultats suggèrent que l'essentiel du cycle parasitaire se produirait en réalité quasiment entièrement dans la rate. Or, il est bien connu que dans les

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ris : Les Belles Lettres, 2016), 198. Sur l'impact du paludisme dans l'Égypte antique cfr. Walter Scheidel, *Death on the Nile: Disease and the Demography of Roman Egypt* (Leiden : Brill, 2001).

111 Contre les mites, il faut mettre la plante dans les vêtements (Plin.) ou la broyer et la saupoudrer dans les coffres (Dsc.) ; contre les rongeurs, il s'agit d'une recette pour les éloigner des écrits en ajoutant à l'encre une infusion d'absinthe (Plin. et Dsc.).

112 Plin., *HN* XXV, 130.

113 Sur ce point, voir Sallares, *Malaria and Rome*, 16.

114 Cass. Fel., LVIII, 2 ; la fièvre tierce mentionnée ici est, selon la traduction d'Anne Fraisse, dans son édition, une « fièvre tierce bâtarde », c'est-à-dire une fièvre tierce irrégulière qui peut se transformer en fièvre quarte (Cass.Fel., 58.1). Il pourrait s'agir d'une co-infection par *Plasmodium vivax* et *P. malariae*. Ducourthial, *Flore magique*, 436 mentionne un extrait d'un opuscule consacré aux plantes du Zodiaques, attribué à Thessalos, à Harpocration ou à Hermès Trismégiste (*C. C. A. G.* VIII, 3, 146–147), qui affirme que le suc de l'*artemisia*, joint à de l'huile de rose, sert à fabriquer un onguent qui délivre ceux qui ont la fièvre tierce ou la fièvre quarte.

115 Plin., *HN* XXI, 162 ; Dsc., *MM* III, 24.3.

116 Dsc., *MM* III, 24.3.

117 E.g.. Éric Faure et Natacha Jacquemard, « L'émergence du paludisme en Gaule : analyse comparée des écrits de Sidoine Apollinaire et Grégoire de Tours », in *Présence de Sidoine Apollinaire*, éd. Rémy Poignault et Annick Stoehr-Monjou, *Caesarodunum* XLIV-XLV bis (Clermont-Ferrand : Centre de Recherches A. Piganiol, 2014), 55–70.

118 Steven Kho et al., « Evaluation of splenic accumulation and colocalization of immature reticulocytes and *Plasmodium vivax* in asymptomatic malaria: A prospective human splenectomy study », *PLoS Medicine* 18, no. 5 (2021) : 1003632 (publication électronique : https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003632, dernier accès le 14 mars 2025).

régions de forte endémie paludéenne un nombre élevé de personnes ont une rate anormalement volumineuse et cette splénomégalie peut être associée à une hépatomégalie.[119]

Dans les textes médicaux grecs et latins, de nombreuses recettes proposées concernent la rate et fréquemment elles étaient destinées à faire diminuer son volume. Dans l'Antiquité, le paludisme étant très répandu, certaines de ces recettes devaient préférentiellement s'adresser à des patients infectés par le paludisme. La rate est bien présente parmi les indications des armoises antiques. Chez plusieurs auteurs, l'absinthe (*Artemisia absinthium*) intervient dans les traitements pour la rate, et en particulier chez les auteurs de l'époque romaine.[120] Pline la donne avec du vinaigre, de la bouillie ou des figues,[121] Dioscoride avec des figues également, du nitre et de la farine d'ivraie.[122] Cassius Felix préfère apposer un cataplasme fait avec plusieurs plantes dont une touffe d'absinthe.[123] Mais la mention la plus intéressante est celle de Celse : il propose une décoction d'absinthe pour lutter contre le gonflement de la rate.[124] Nous sommes donc bien là dans un cas de splénomégalie, comme on en voit dans les cas de paludisme. Il semble bien que la splénomégalie associée au paludisme était bien connue des Romains,[125] d'autant plus qu'Hippocrate lui-même avait déjà mentionné un lien entre les lieux marécageux (donc susceptibles d'être infestés de moustiques infectés) et l'augmentation du volume de la rate.[126]

Comment aussi ne pas souligner que les armoises et nombre de leurs métabolites purifiés se caractérisent par leur grande amertume tout comme la majorité des molécules antipaludéennes en commençant par la quinine et ses dérivés ?

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[119] Voir Sallares, *Malaria and Rome*, 16–17. Dans les zones holoendémiques, les taux de spénomégalie peuvent dépasser 75% dans certaines tranches d'âge ; WHO malaria terminology, 2021 update (publication électronique : https://www.who.int/publications/i/item/9789240038400, dernier accès le 14 mars 2025).

[120] Cels., IV, 16.2 ; Plin., *HN* XXVII, 49 ; Dsc., *MM* III, 23.3 ; Cass.Fel., LXXVI, 8 et 10.

[121] Plin., *HN* XXVII, 49 : *lienis causa cum aceto aut pulte aut fico sumitur*. Les figues permettent de sucrer la préparation et d'en adoucir l'amertume.

[122] Dsc., *MM* III, 23, 3 : ἀρμόζει δὲ καὶ σπληνετικοῖς μιγέντων αὐτῷ σύκων καὶ νίτρου καὶ αἱρίνου ἀλεύρου.

[123] Cass.Fel., LXXVI, 10 : ce cataplasme contient aussi des racines de câprier, du cumin, des baies de laurier, de la farine de fenugrec et d'orge.

[124] Cels., IV, 16.2 : « Une décoction d'absinthe doit être donnée à jeun en boisson », *Potui vero jejuno dari debet apsinthium incoctum*.

[125] Sallares, *Malaria and Rome*, 16–17.

[126] Hp., *Aër.*, VII, 3 (II, 26 L.) : « Et chez ceux qui boivent [les eaux stagnantes], la rate est (nécessairement) toujours grosse et indurée, le ventre dur émacié et chaud [...] (Τοῖσι δὲ πίνουσι σπλῆνας μὲν ἀεὶ μεγάλους εἶναι καὶ μεμυωμένους καὶ τὰς γαστέρας σκληράς τε καὶ λεπτὰς καὶ θερμάς [...]) », traduction par Jacques Jouanna (Hippocrate, *Airs, Eaux, Lieux*, éd. Jacques Jouanna (Paris : Les Belles Lettres, 1996), 200. Dans la littérature médicale grecque de l'époque impériale, on trouve chez Arétée de Cappadoce aussi le lien entre les pathologies de la rate et les eaux marécageuses. Aret., *SD* I, 14. Voir Aretaeus, *De causis et signis morborum acutorum*, éd. Karl Hude (Berlin : Akademie-Verlag, 1956), 57 : « Régions marécageuses, eaux âcres, salées, malodorantes » (χωρία ἑλωδεα, ὕδατα πλατέα, ἁλμυρά, βρωμώδεα).

3. Conclusion

L'analyse des textes latins et grecs nous a permis de montrer qu'au sein du genre *Artemisia*, toutes les espèces ne présentaient pas le même intérêt pour les Anciens. Nous avons vu aussi qu'à partir de celles qui étaient les plus utilisées dans le passé, des principes actifs ayant de réelles efficacités médicales et correspondant souvent aux domaines d'utilisation dans le monde gréco-romain ont pu être fréquemment isolés. De plus, des principes actifs extraits des armoises permettent de traiter des maladies spécifiques aux femmes ce qui nous renvoie non seulement à l'utilisation antique de cette famille de plantes mais aussi à Artémis. Cette étude montre aussi comment l'interdisciplinarité peut éclairer d'un jour intéressant les textes médicaux de l'Antiquité. En effet, selon nous, la clé de l'élargissement du champ d'étude des armoises, et bien au-delà de l'ensemble des plantes dans les textes antiques, nécessiterait des collaborations étroites entre antiquisants, botanistes, biochimistes, pharmacologues et médecins.

Bien sûr le travail n'est pas achevé, loin de là. Il faudrait encore mettre en perspective, entre autres, les parties utilisées, les processus de préparation, les modes d'administration dans les prescriptions trouvées chez les auteurs Gréco-Romains, et les données pharmacologiques actuelles. Il faudrait aussi travailler sur l'origine géographique des plantes, sur les spécificités que les Anciens accordaient aux armoises en fonction de leur habitat, quand ils mentionnaient, par exemple que telle armoise qui pousse dans tel pays ou telle région était particulièrement efficace. Il serait intéressant aussi de croiser ces informations avec les données phytogéographiques et pharmacologiques actuelles. L'habitat des plantes agit effectivement sur les vertus des plantes. Quantitativement et qualitativement, la teneur en métabolites secondaires bioactifs dépend de très nombreux paramètres comme la localisation géographique, l'altitude, la composition du sol, l'organe (= la partie) de la plante prélevée, les taux de ploïdies et la période de récolte. Des différences notables peuvent aussi être observées entre les sous-espèces, les populations et même au niveau inter-individuel.

Actuellement le paludisme reste un frein au développement économique de nombreux pays surtout en Afrique noire et au cours de l'histoire, il est connu qu'il a fortement impacté le pourtour méditerranéen incluant le monde gréco-romain. De plus, le développement des transports aériens, le réchauffement climatique et les flux migratoires font craindre une réémergence du paludisme en Europe. Face à l'apparition continuelle de souches de *Plasmodium* résistantes aux traitements actuels, il est indispensable de rechercher de nouveaux médicaments et l'analyse des textes antiques pourrait être la toute première étape du long processus conduisant à la mise sur le marché de principes actifs innovants. De nos jours, un grand nombre de stratégies pour développer de nouvelles drogues thérapeutiques font appel aux outils les plus modernes comme les approches *in silico* incluant l'intelligence artificielle, mais même si cela peut paraître paradoxal et anachronique, nous suggérons d'y rajouter l'analyse critique des textes antiques, ce retour vers le passé pourrait aussi aider à proposer de nouveaux remèdes pour le futur.

/ Reviews /

Frédéric Le Blay, *La fascination du volcan. Les mythes et la science, avec une nouvelle édition et traduction du* Poème sur l'Etna, Paris: Librairie Philosophique J. Vrin, 2023, 338 pp. ISBN: 9782711631087

Questo volume indaga le concezioni, mitiche e scientifiche, legate ai vulcani nel mondo classico, ma il vero centro di interesse di F. Le Blay (d'ora in poi "A.") è l'*Aetna*, un anonimo poemetto del I sec. d.C. interamente dedicato al vulcano siciliano. Per questa ragione, la trattazione si concentra prevalentemente sull'Etna, che, del resto, era il vulcano in assoluto più famoso e importante per gli antichi, ma non mancano riferimenti, anche di una certa ampiezza, al Vesuvio e alla sua eruzione del 79 d.C. (pp. 87–94), e ad altri luoghi vulcanici (le Eolie, Thera-Santorini, etc.: si veda l'*Index géographique* alle pp. 324–326). Ne risulta uno studio programmaticamente interdisciplinare, situato al crocevia fra letteratura, filologia, filosofia e storia della scienza, di cui viene rivendicata, con esibito orgoglio, l'originalità; "nous avons le sentiment d'ouvrir une voie nouvelle", dice l'A. (p. 9), facendo suo – forse non inconsapevolmente – quel ruolo di *primus ego* che il poeta dell'*Aetna* aveva rivendicato per sé (vv. 6–8 e 24). Ovviamente, l'A. non è il primo a occuparsi dell'*Aetna* o dei vulcani nell'antichità, ma una monografia di questo genere e con questa impostazione metodologica mancava nel panorama degli studi, e dunque va salutata con consenso.

I fondamenti teorici e gli intenti del lavoro sono chiariti nell'*Introduction* (pp. 9–20). Alla forma tradizionale del commento analitico, verso per verso, l'A. ha preferito quella del saggio argomentativo: le due *parties* introduttive sono da intendersi come una "*présentation*" (p. 15) al contesto culturale in cui l'*Aetna* si inserisce, e dunque come propedeutici alla lettura del poemetto in questione, di cui l'A. offre un'ulteriore *Présentation* (pp. 193–211), il testo latino e la traduzione francese (pp. 214–257), e un commento essenziale diviso per ampie pericopi (pp. 259–290). Seguono un'utile *Conclusion* (pp. 291–298), un'informata *Bibliographie* (pp. 299–320), gli indici (quello geografico, già menzionato sopra, e dei luoghi citati, pp. 327–332) e un glossario dei lessemi 'vulcanici' utilizzati nell'*Aetna* (pp. 333–335).

Nella prima *partie* (*Un monde volcanique*, pp. 21–106), dopo ampie puntualizzazioni sul rapporto tra *mythos* e *logos* che prendono in considerazione le riflessioni degli antichi (specialmente Platone, Aristotele, Epicuro) e dei moderni (per es. P. Veyne, L. Brisson), l'A. analizza con dovizia di particolari i miti connessi all'immaginario vulcanico (i Giganti, Efesto e i Ciclopi, la Chimera), sottolineando come l'Etna, specialmente nella poesia latina, sia un tema molto frequentato (cf. per es. Lucr. 6.639–702; Verg. *Aen*. 3.570–586; Ou. *met*. 15.340–355; Sil. 14.58–69; Claud. *rapt*. 1.153–178), come aveva già visto Seneca, che in *epist*. 79.5 definisce il vulcano *sollemnem omnibus poetis locum*. Questo perché l'Etna nella cultura antica è un fenomeno meraviglioso, un *mirabile* in senso tecnico, la cui straordinarietà è comprovata, sul piano ufficiale, dalla sua inclusione delle liste dei *prodigia*.

La seconda (pp. 107–190), che a giudizio di chi scrive rappresenta la sezione più interessante e riuscita del lavoro, ha per titolo un interrogativo, *Le volcan, un météore?*: qui l'A. prima offre un'utile sintesi sulla meteorologia antica a partire dalla formalizzazione datane da Aristotele nei suoi *Meteorologica*, che vengono dettagliatamente discussi, e poi cerca di dare una risposta alla luce delle testimonianze presenti nei vari trattati meteorologici. I fenomeni vulcanici, diversamente dai terremoti, con cui pure già per gli antichi sono 'imparentati', vengono trattati solo saltuariamente in queste opere.

Nei *Meteorologica* aristotelici, si legge un cenno a un'eruzione avvenuta a Hierà-Vulcano (367a 3–9), che pure è importante perché testimonia quella teoria pneumatica cui il mondo antico ricorreva per illustrare il fenomeno: si credeva, infatti, che le eruzioni vulcaniche fossero dovute all'azione dei venti sotterranei (così, per es., Lucr. 6.680 ss. e l'*Aetna* stesso), proprio come i sismi, nonostante per questi ultimi siano attestate anche altre spiegazioni; anche nelle *Naturales quaestiones* di Seneca le testimonianze sono molto limitate (2.26.4–6 e 6.4.1, dai libri, rispettivamente, sui fulmini e sui terremoti), e l'ipotesi di un libro perduto dedicato ai vulcani è puramente congetturale. La conclusione cui l'A. arriva, considerando anche la fisica dei quattro elementi secondo la concezione aristotelica, è che i vulcani non costituiscono di per sé un argomento meteorologico, benché paradossalmente esemplifichino alla perfezione quei tratti di irregolarità, incostanza e imprevedibilità che caratterizzano i *meteora*. Di grande interesse sono anche le riflessioni di carattere lessicale alle pp. 169–172: dato che il termine 'vulcano' in riferimento a montagne ignivome, come è noto, è sconosciuto tanto ai Greci quanto ai Latini (l'uso è infatti attestato solo a partire dal XIV sec.), l'A. ne ricava che per gli antichi "le volcan ne serait tel que dans son activité; dès lors qu'il est éteint ou en sommeil, il n'est plus qu'un mont parmi d'autres" (p. 169); l'espressione utilizzata in latino (*mons flagrans*) è a questo riguardo illuminante.

Il volume, come si diceva, culmina nell'edizione con traduzione e commento dell'*Aetna*; ma prima l'A. offre uno specifico quadro di presentazione, soffermandosi, com'era prevedibile, sul problema dell'autore. Scartando l'ipotesi, molto fortunata, di Lucilio, che a nostro avviso avrebbe dovuto cadere immediatamente, considerata l'evidente incompatibilità tra l'estensione del poemetto (quasi 650 vv.) e l'uso del verbo *adtingo* nella nota testimonianza di Seneca già parzialmente citata sopra (*epist*. 79.5: *quid tibi do ne Aetnam describas in tuo carmine, ne hunc sollemnem omnibus poetis locum adtingas?*), l'A. pensa a un personaggio della scuola dei Sesti, al cui ambiente appartenne anche Seneca. Quanto al testo, è noto che l'*Aetna*, come molti altre opere dell'*Appendix Vergiliana*, presenta molti e gravi problemi, sicché, spesso, non resta che rassegnarsi all'uso delle *cruces*. L'A. non offre una vera e propria edizione critica, ma prende come riferimento il testo stabilito da Goodyear (1965), da cui, però, si distacca in vari punti; anche se manca una tavola comparativa, il lettore può facilmente rintracciare le divergenze perché nel corso del testo sono evidenziate in grassetto. Non è questa la sede per discutere dettagliatamente le scelte testuali adottate: ci si chiede, però, perché l'A., quando non segue Goodyear nel lasciare a testo la lezione dei codici tra croci, talora stampi congetture (o varianti minoritarie) ponendole comunque tra croci (per es. v. 63); inoltre, sarebbe stato opportuno ricordare, tra le edizioni più autorevoli dell'*Aetna* (pp. 207–208), quella di A. De Vivo (Napoli 1987), poi confluita nell'edizione lincea dell'*Appendix Vergiliana* (Roma 1997). Il commento, privo di pretese di completezza, costituisce una valida guida alla lettura, utile soprattutto a seguire lo sviluppo argomentativo di questa non facile opera.

In definitiva, il volume, che si segnala per la ricchezza dei contenuti, per la solidità di un approccio davvero interdisciplinare, per la limpidezza dell'esposizione e dello stile, si raccomanda non solo a quanti sono specificamente interessati all'*Aetna*, ma a tutti gli studiosi di scienze naturali e di vulcani nel mondo antico.

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Maura C. Flannery, *In the Herbarium: The Hidden World of Collecting and Preserving Plants*, New Haven and London: Yale University Press, 2023, 325 pp. ISBN: 9780300247916

Maura C. Flannery's book proposes a broad history of herbaria, from the 16th century to today. A biologist working at St John University (New York), now a professor emerita and a researcher affiliated to the A.C. Moore Herbarium of the University of South Carolina, she had an interest in herbaria since 2010. That led her to study their history. Flannery's ambitious project is to "travel through the past, present and future of the herbarium" (p. 7). She tackles this challenging goal through sixteen chapters that present a rich and passionate history of herbaria, from their creation to their current uses and potential for the discovery of new species and for the study of environmental changes. Her research is mainly based on a rich bibliography and the study of several herbaria, complemented by some archives. These herbaria provide beautiful illustrations throughout the book, as Flannery presents some of the collections she studied, including famous ones (Linnaeus, Robert Brown, Jean-Jacques Rousseau, Ames Oakes, etc.), as well as their material and visual diversity, entwining science and art.

The first chapter focuses on the history of Ames and Blanche Oakes in the late 19th century and beginning of the twentieth, and emphasizes the complementarity between herbaria, drawings or other kinds of collections in the study of plants and in the visualization of their characteristics. He was a teacher of Botany at Harvard who investigated on orchids (among other topics), she worked with him and contributed to the making of an important herbarium of orchids, curated at Harvard University, which is one of the last testimonies of the botanical collections of Berlin before the Second World War. This herbarium includes specimens of dried orchids completed by sketches and watercolours of the living plants made by Blanche Oakes in 1922. The famous and beautiful collection of glass flowers made by Leopold and Rudolf Blaschka, ordered by Oakes, completed the study of dried specimens in the teaching of botany at Harvard, showing the volumes and the colours that vanished in herbaria. The importance of Blanche and of international networks that included artists and botanists announce some trends explored by the author. The steps of this rich history linking art to science, rooted in social and institutional history and related to actual environmental changes, are developed in the following chapters.

The birth of herbaria in 16th-century Italy, attributed to Luca Ghini, was linked to *materia medica*. This practice spread through medical and humanist networks in European countries, in relation to medical teaching and learning, but this could also be linked to the rise of collections, including cabinets of curiosities (briefly mentioned in p. 24). Those collections were strongly related to botanical drawings, and took various forms, from herbarium to collections of seeds, fruits of flowers in alcohol or in wax (chapters 3 and 5). This practice was sustained by scientific explorations from the sixteenth to the 19th century, which were increasingly organized by European and Western states. Thus, Flannery stresses the link between the making of herbaria, colonization, politic and economic issues. She presents this history in various geographical areas according to the period. She also highlights the relationships between botany, agriculture and the taste for ornamental plants, which led to the rise of horticulture. Herbaria were used as tools for botanical study and the elaboration of taxonomy, as in the case of Linnaeus (chapter 6), or later with the definition of type specimens to facilitate the use of

herbaria as taxonomic references in the late nineteenth and early 20th century (chapter 11), in relation to the problem of species and various methods to resolve taxonomic issues. Some were catalogues used by nurserymen to advertise their production, in relation to the rise of garden and the taste for ornamental plants. These chapters include sometimes elements of the actual scientific uses and significance of those collections, disrupting the historical narrative but showing their importance to study the evolutions of biodiversity and environmental change, for instance with the actual use of Bonpland and Humboldt herbarium in the study of the evolution of treelines in mountains. Their value, either scientific, historical, cultural or economic, raised issues on conservation and curation (chapter 5).

The focus on institutional and economic networks, linked to museums, states and nurseries, could have hidden other kinds of practices and actors who could take the opportunity of a private trip or professional opportunities to collect plants for herbaria. However, Flannery highlights the importance of indigenous guides and people in those explorations as well as in the making of botanical knowledge, which allows her to stress the importance of "decolonizing collections" several times throughout the book – even if other actors could collect in colonial areas. Moreover, the study of "gardens" (chapter 8) and of the wide-spread taste for natural history and botany in the 19th century (chapter 10) addresses other kinds of actors and practices, such as women, children, and the making of herbaria as souvenirs or personal and aesthetic, where the choice of plants is sometimes entwined with fashion or arts. This context, along with the rising institutionalisation and professionalisation of the field at the end of the 19th century, questions the way amateurs and women took part in the making of botanical knowledge and dealt with this changing context.

Between the 19th and the 20th centuries, the rise of new fields and objects of research, such as evolution, ecology and genetics, questioned the importance of herbaria and taxonomic studies and progressively led to the fading of herbaria in the second part of the 20th century. Nevertheless, ethnobotany, phylogenetic with DNA sequencing, and finally environmental issues raised a new interest in herbaria. The examination of plants in herbaria can reveal new species of plants, as well as new fungi discovered on the roots of the dry specimens. Collections can "provide evidence of climate change" (p. 207) through the study of stomatal density or phenology, and difference in times of blossoming can have consequences on pollination and insect populations, while live plants or seeds collections associated with herbaria are interesting resources to deal with issues related to conservation and uses of biodiversity. The making of the first databases in the end of the 1960s constitutes a prelude to the large-scale digitization of herbaria developed in the 21st century, even if that did not supress the importance of fieldwork. This new visibility enhances the actual interest in herbaria, in education, arts or humanities, linked to new curiosity and attention for plants.

There are a few crucial aspects of the history of herbaria that the author has decided to leave aside: the material and technical operations involved in plant collecting and the making of herbaria (chapter 3), on which the author "could have written much more" (p. 248), as she herself acknowledges, or issue of social history (such as the evolution of the place of amateurs in science and the erasure of women in science).[1] Nevertheless, Flannery presents a wide and convincing history of those collections, entwined with colonial, cultural, economic, science and political histories. The index gives an overlook of the numerous questions addressed by the author. Her emphasis throughout the book on the importance of

[1] Sarah Benharrech, "Botanical Palimpsest, or erasure of women in science: the case study of Mme Dugage de Pommereul (1733–1782)", *Harvard Papers in Botany* 23, no.1 (2018): 89–108.

old herbaria to study the history of biodiversity and human societies, as well as the consequences of environmental change on habitats and plants, allows the author to link this history to actual and crucial issues, while considering the historical contexts and different aims in which herbaria were made and used. The nice writing communicates her passion for herbaria, and the author's attention for explaining every technical term make it accessible to a wide public, from student to experienced researchers interested in having a general view on those collections, their past and actual uses.

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Massimo Moretti (a cura di), *Gli animali e la caccia nell'immaginario di Francesco Maria II della Rovere*, Roma: De Luca Editori d'Arte, 2024, 432 pp. ISBN: 9788865575772

Gli animali e la caccia nell'immaginario di Francesco Maria II della Rovere, a cura di Massimo Moretti, offre un'esaustiva ricostruzione dell'universo culturale e simbolico dell'ultimo duca d'Urbino, definito "principe filosofo" da Torquato Tasso. Questo volume, che inaugura la collana *Immaginare i saperi*, persegue l'obiettivo, come esplicitato dal curatore e da Giovanni Pacini, di "collegare dei saperi e delle immagini a un immaginario di nuovo eloquente, reso accessibile alla contemporaneità sia per l'esercizio della libera facoltà immaginativa, sia per la stesura di un nuovo discorso, quanto più aderente possibile alla storia" (p. 365).

L'analisi dell'arte venatoria, la quale rappresenta il tema unificante dei numerosi contributi che compongono il volume, si dimostra uno strumento efficace per indagare l'iconografia dell'età moderna. Nel duca d'Urbino coesistevano l'osservazione scientifica della natura e la passione per la caccia. Il suo interesse per il mondo animale abbracciava tanto la natura addomesticata, rappresentata dalle siepi zoomorfe dei giardini ducali e dai "gatti mammoni" di Villa Mirafiore a Pesaro, quanto la dimensione selvatica delle riserve venatorie del Barco Ducale e del Barchetto circostanti al palazzo di Castelduranti. In questo volume viene efficacemente dimostrato come, conformemente alla sensibilità cinquecentesca, nel duca d'Urbino la curiosità naturalistica si accompagnava a un'ambizione di possesso. Le battute di caccia, meticolosamente annotate nel diario ducale come cacce delle Cesane, di Cerpolino, di Villa della Stretta, costituivano autentici atti di appropriazione del territorio. Parallelamente, la sua biblioteca, comprendendo sia opere fondamentali come la *Historia Animalium* di Aristotele (di cui egli promosse la prima traduzione in volgare), sia testi di grandi autori contemporanei come Ulisse Aldrovandi, Conrad Gessner, Pierre Belon e Pietro Andrea Mattioli, rappresentava il teatro di un possesso intellettuale della natura e delle sue meraviglie.

La prima sezione del volume contestualizza la figura di Francesco Maria II nel panorama politico e culturale a cavallo tra il XVI e il XVII secolo, offrendo una reinterpretazione del suo governo che, contrariamente alla lettura che vedeva nel duca la principale causa del tramonto del ducato, rivitalizzò l'ideologia cortigiana rinascimentale. Viene analizzata l'architettura della biblioteca di Castelduranti, le cui raccolte specialistiche costituivano delle vere e proprio *wunderkammer*, e il ruolo della biblioteca all'interno dell'ambizioso progetto urbanistico di connessione tra il Palazzo, la piazza cittadina e la Paggeria. Un'attenta disamina del catalogo ducale, comprendente circa 13.000 segnalazioni bibliografiche, rivela la poliedricità degli interessi del duca: dall'etica all'astronomia, dalla medicina alla storia naturale, fino alle arti figurative, all'alchimia e all'arte venatoria. La biblioteca includeva le opere di Bartolomeo Scappi, di Vincenzo Cervio, di Cristoforo da Messisburgo, di Giorgio Agricola, e i commentari aristotelici. La sua passione per l'equitazione e la caccia emerge attraverso le annotazioni diaristiche sui cavalli, cani e piccioni ricevuti in dono. L'analisi dei manoscritti e delle note contabili, inoltre, consente di ricostruire più nel dettaglio le tipologie, le razze e le provenienze dei numerosi animali posseduti.

La seconda sezione si apre con l'esplorazione dell'immaginario del duca attraverso la rappresentazione iconografica di *monstra* come il cinocefalo, l'unicorno e il pesce monaco. Un significativo contri-

buto è dedicato al gioco degli scacchi, trattato nel *Libro del Cortegiano* di Baldassarre Castiglione e presente anche nei manoscritti urbinati: l'analisi fa luce non soltanto sulla centralità della competizione a scacchi nelle corti rinascimentali, ma soprattutto sull'immaginario intorno alle scimmie, animali curiosamente ricorrenti nelle illustrazioni cinquecentesche relative al gioco degli scacchi. L'immaginario ducale comprendeva anche animali allora praticamente sconosciuti come l'alce, per via delle presunte proprietà terapeutiche dei suoi zoccoli. Nella simbologia venatoria, inoltre, determinati animali assumevano connotazioni religiose: i cinghiali, ad esempio, rappresentavano un surrogato degli ottomani o degli eretici contro cui il duca doveva scagliarsi. Gli animali costituivano inoltre presenze rilevanti nell'educazione del figlio Federico Ubaldo, sempre accompagnato, nei dipinti che lo ritraggono, dal falcone o dal proprio cane da compagnia. L'analisi si estende alla rappresentazione del cavallo, alla complessa affinità tra uomo e cavallo e agli studi di mascalcia finalizzati a trasformare l'animale selvaggio in un "caval cortigiano". Viene sottolineato, infatti, come l'educazione aristocratica e l'addestramento dei puledri procedevano parallelamente: il futuro principe doveva dimostrare allo stesso tempo dominio di sé e controllo sul cavallo attraverso l'esercizio del freno. Si documentano inoltre episodi relativi ad animali esotici giunti a Casteldurante, come l'elefante Don Diego, evidenziando sia la prassi diplomatica del dono di animali rari, sia il loro apparato simbolico. L'indagine comprende anche manufatti zoomorfi, dai gioielli alle maioliche a forma di tartaruga o di drago, fino alle decorazioni della fontana di Senigallia, nonché elementi di simbologia zodiacale.

La terza sezione colloca l'immaginario animale del duca nel contesto scientifico, filosofico e artistico della prima modernità, comparando la biblioteca di Casteldurante con le collezioni librarie di Federico Cesi e tracciando connessioni persino con l'enciclopedismo settecentesco. Si analizzano le metafore zoomorfe dei lupi, degli orsi, dei cinghiali e delle volpi, nonché le analogie femminili nei manoscritti urbinati, delineando un "bestiario simbolico e morale ricorrente" (p. 204). Non mancano i riferimenti a Costanzo Felici, a Paracelso e a Bartolomeo Ricci. I contributi considerano opere come *Ammaestramenti per allevare, pascere e curare gli uccelli* di Cesare Mancini, in cui si evidenzia l'interesse anatomico e le cure per l'avifauna domestica utilizzata nella caccia, ma anche la *Hippiatria* di Lorenzo Rusio e la *Mulomedicina* di Vegezio. Soprattutto viene posta grande attenzione ai rapporti di mecenatismo con Ulisse Aldrovandi.

Il volume costituisce un contributo metodologicamente innovativo, integrando indagine iconologica e criteri biblioteconomici per lo studio di ciò che viene proposto dai curatori come "immaginario storico". Il patrimonio culturale di Francesco Maria II si interseca così con la storia delle committenze roveresche, e vengono anche sapientemente messe in luce le relazioni tra la corte urbinate e quella asburgica di Madrid, collocando così la biblioteca ducale nel più ampio panorama politico, sociale e religioso del XVI secolo.

Questo volume rappresenta un prezioso contributo interdisciplinare: è rilevante per la storia dell'arte, offre significativi spunti alla storia culturale, alla storia sociale e alla storia naturale, illuminando con straordinaria ricchezza documentaria le complesse relazioni tra l'uomo, la natura e gli animali nell'Italia rinascimentale e costituisce, a mio avviso, un'efficace storia iconologica degli animali.

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Andreas W. Daum, *Alexander von Humboldt: A Concise Biography*, Princeton & Oxford: Princeton University Press, 2024, 224 pp. ISBN: 9780691247366

This book's aim is ambitious: to write a concise biography of Alexander von Humboldt (the book only has 153 pages, excluding appendices), without lapsing into superficial interpretations and analyses that reduce his figure to that of the brilliant genius detached from reality or "heroic" narratives, such as Andrea Wulf's Humboldt as the one who "invented nature" (2015). Translated from the German original (2019) with some changes, this succinct biography is divided into seven chapters complemented by a chronology, a useful guide to sources and further reading and a selected bibliography of Humboldt's works and secondary literature. The apparatus of notes is light but has numerous references to sources and works cited. The account starts from Humboldt's early years and training, passing through the experience in the Prussian mining service, the American journey, the periods spent in Paris and Berlin, the trip to Russia and Asia, up to the last years of his life. Information is also provided about his private life and affective relationships, to show that the image of Humboldt as an "emotionally unresponsive workaholic" is a later stereotypical one. What emerges is a portrait of a man with multifaceted interests and skills, reluctant to office work and "in constant movement" (p. 30).

Daum's book belongs to the strand of biographies in context, devoting ample space to describing the cultural, social and political context in which the scientist was trained and carried out his activities, but also to the encounters and figures – family members, scholars, politicians, sovereigns – who inspired him or influenced his ideas. The purpose is to enable the reader to understand that Humboldt's path was the result of personal attitudes and insights combined with a specific socio-cultural and political-economic framework. The author draws attention to a Europe that was undergoing rapid change between the eighteenth and nineteenth centuries, marked by political upheavals and revolutionary turmoil, the formation and affirmation of nation-states, the industrial revolution, significant changes in civil society, as well as the specialization and professionalization of scientific disciplines, particularly the natural sciences, and the gradual transition from an 18th-century sensibility typical of the Enlightenment and Neoclassicism to a 19th-century, more typically Romantic one, which directly affected ideas in the philosophy of nature.

One of the considerations at the core of the book concerns the legacy of Humboldt's work. The author questions the category of "Humboldtian science" (coined by historian of science Susan Faye Cannon in 1978), arguing that it is misleading in that it corresponds more to an ideal than to the research method actually followed by Humboldt, emphasizing how personal interests and circumstances that were not strictly scientific influenced his theories more than a supposed systematic approach. Rather, his science was situational, in motion, experimental, based on field work, and admitting doubt and error as the engine of advancement. It was a science of its own time, when not only were the boundaries between the various natural sciences not clearly defined, but neither were those between the natural sciences, philosophy and literature. Particularly relevant for Humboldt was, for example, his encounter with Schiller and Goethe, who influenced his conception of nature and his idea that there need not be "opposition between empiricism and natural-philosophical ideas" entailing an aesthetic experience of nature (p. 91). Moreover, without denying Humboldt's indisputable contributions to

the geography of plants, the study of the relationships between climate and vegetation distribution, and the development of an ecological approach to the study of nature, Daum argues that, in retrospect, Humboldt's scientific legacy was not as game-changing as that of other figures of equivalent renown, such as Charles Darwin, the Prussian scientist's aim at conveying a "cosmic synthesis" of the physical world having been only achieved in a fragmentary way.

Another central theme of the book concerns Humboldt's relations with politics, which, thanks to the fact that he often did not take a clear political stand on various issues, allowed him to gain favour with the governments of various countries and thus to conduct his research rather freely. This, combined with his expertise in Prussian cameralism, the mining sector and resource extraction, proved to be crucial in obtaining permission to travel through the Spanish colonies in America between 1799 and 1804 and to Russia and Asia in 1829. Although decisive for Humboldt's scientific thinking and career, the journey to America is not presented here as the sole source of his theories on nature, like other accounts did. Furthermore, the author emphasizes how, especially in this case, it is important not to indulge in idealized narratives or, on the contrary, in presentist readings such as postcolonial critiques of Humboldt's position towards colonialism. Instead, nuances and contradictions need to be taken into account to avoid ending up in simplistic and biased interpretations: neither did Humboldt condemn colonialism entirely, nor did he look at South America exclusively with "imperial eyes", being aware of the ecological costs and social inequalities caused by the colonial system. Daum also pays attention to the massive task of rearrangement of the notes and material collected during the trip and the process of "delivering to the public" the results of the research conducted there. The reception of Humboldt's work is analyzed in the light of the evolution of knowledge in the 19th century and the rise of popular science.

Overall, the portrait that emerges from Daum's account, despite its conciseness, conveys the complexity of Humboldt's figure, providing plenty of insights and a fresh look at his place in the history of science. The book is an excellent starting point for those approaching Humboldt for the first time and wishing to gain an overview of his biography and contributions to the history of science without sacrificing rigour, but also an important reference for those wishing to explore certain aspects of his life and work in greater depth.

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Michele Campopiano, *Storia dell'ambiente nel Medioevo. Natura, società e cultura*, Roma: Carocci Editore, 2025, 176 pp.
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Il libro di Michele Campopiano indaga l'interazione tra società e natura nel Medioevo occidentale attraverso un approccio che, fra i molti possibili, sceglie di far dialogare la storia del paesaggio con la storia culturale. L'intento è quello di sottolineare l'importanza della questione della proprietà e del dominio nella trasformazione dell'ambiente nel corso dei secoli dando, allo stesso tempo, alla rappresentazione culturale della natura un ruolo da protagonista. Il trinomio che fa da sottotitolo – "natura, società, cultura" – segnala fin da subito la chiave interpretativa adottata dall'autore per orientare la lettura del volume. Quest'ultimo propone, infatti, un'analisi delle diverse idee medievali di natura, iniziando da quelle ereditate dalla cultura classica fino ad arrivare alla personificazione della stessa a partire dal XII secolo. A questo percorso si affianca l'intenzione di trattare il rapporto di influenza reciproca che caratterizzò ambiente e società attraverso una periodizzazione che tende a ricalcare quella più tradizionale.

L'autore si propone, da un lato, di riflettere su alcune questioni ampiamente discusse. Tra queste, vi è il tema delle radici cristiane della crisi ecologica, come sostenuto da Lynn White (1967), e quello dell'enfasi posta dal pensiero cristiano sul ruolo dell'essere umano come custode della natura, secondo l'interpretazione di Clarence Glacken (1967). Dall'altro lato, il volume intende avanzare nuove prospettive di lettura, tra le quali spicca la necessità di preservare un'idea di natura come entità distinta dall'agire umano. Tale posizione si configura come risposta critica al "pensiero ecologico" di Timothy Morton, il quale afferma con decisione che "la natura non serve all'ecologia" (p. 13).

Il *fil rouge* che il lettore tiene in mano nel corso delle pagine conduce, per mezzo di un approccio neomarxista, attraverso un itinerario che mostra come nel primo Medioevo l'inclinazione dell'uomo era quella di percepire la natura come qualcosa di diverso da sé, mentre i secoli centrali furono segnati da una lenta ma costante trasformazione dell'ambiente che lo portò ad essere "a misura d'uomo". Questa trasformazione fu causata da interventi che imposero alla natura un ordine "decoroso", con l'obiettivo di renderla utile economicamente e bella esteticamente, complice una riscoperta, a livello culturale, dell'universo come ente unitario.

Il primo capitolo affronta il lascito del mondo antico nel Medioevo discutendo le modalità attraverso le quali le società dell'età di mezzo ereditarono non solo una serie di modelli organizzativi impostati sulla regolarità geometrica (centuriazione), ma acquisirono al tempo stesso un patrimonio di riflessioni scientifiche e filosofiche sulla natura. Se i modelli gestionali influenzarono le bonifiche medievali grazie alla preservazione del sistema di canalizzazioni, e innovazioni tecniche come quella del mulino ad acqua, l'eredità culturale portò con sé il problema di creare una nuova definizione di natura. In questo processo l'autore sottolinea l'importanza di opere quali il *Timeo* di Platone, la corrente neoplatonica mediata dal pensiero dei padri della Chiesa, la *Metafisica* di Aristotele, lo stoicismo che passò al mondo medievale attraverso figure quali Seneca e Cicerone e altre elaborazioni cristiane di natura come quella di Agostino.

Nel secondo capitolo, servendosi dell'espressione "oceano verde" suggerita da Devroey (2019), Campopiano parla del risultato ambientale delle profonde trasformazioni verificatesi tra il III e il VII

secolo a causa del cambiamento climatico e del calo demografico attribuito alla peste del VI secolo. Attraverso esempi specifici relativi a diverse aree geografiche dell'Europa occidentale, viene sottolineato come comunità diverse reagirono in modi differenti ai cambiamenti della natura, creando nuovi rapporti con lo spazio che abitavano. Questo avvenne anche grazie all'utilizzo delle rappresentazioni culturali proposte dagli autori influenti di quel tempo per la comprensione, la percezione e la spiegazione degli eventi naturali, nonché per l'approccio al mondo animale.

Il terzo capitolo viene definito dall'autore il perno del libro, in quanto è utile a comprendere come è mutato il rapporto con l'ambiente nel Medioevo e come ne è cambiata la rappresentazione culturale. L'evoluzione della relazione uomo-ambiente viene affrontata sia attraverso la spiegazione delle radicali trasformazioni della natura – di cui dissodamenti, drenaggio delle aree umide e disboscamenti rappresentano le manifestazioni più evidenti – sia mediante l'analisi delle ideologie legate a tali trasformazioni e alle loro conseguenze.

Il fulcro del ragionamento di Campopiano risiede nella proposta di andare oltre quelle che possono sembrare le cause più immediate di questi cambiamenti, ovvero la congiuntura climatica, la crescita demografica o gli sviluppi della tecnica come l'introduzione dell'aratro pesante a versoio, per vedere nelle nuove forme di dominio sull'ambiente e sugli esseri umani – consolidati a partire dal X secolo – e nei rinnovati atteggiamenti ideologici che accompagnarono gli sviluppi politici e sociali, le cause dei grandi processi di trasformazione del mondo naturale. In questi cambiamenti l'autore vede l'emergere di interventi consapevoli verso l'ambiente, nonché la nascita di una coscienza in merito al ruolo dell'intervento umano sulla natura. In quest'ottica, i processi di colonizzazione, "agrarizzazione" e urbanizzazione delle terre vengono giustificati dall'intenzione di conversione e civilizzazione delle stesse da parte di signorie laiche o enti ecclesiastici, e concepiti come una parte determinante della storia della trasformazione dell'ambiente che raggiunse uno dei suoi punti cruciali con l'affermazione dell'autorità dei comuni urbani nel contado. La "manipolazione" della natura in questo senso, condusse verso un profondo cambiamento degli ecosistemi e alla loro fragilità, di fronte alla quale però, secondo Campopiano, l'intervento umano sembrò sviluppare una mentalità di fiducia nel controllo dell'ambiente secondo i propri bisogni economici e sociali. Questo atteggiamento portò le società medievali ad enfatizzare le possibilità di gestire a proprio piacimento la natura, per arrivare ad una vera e propria celebrazione della trasformazione della stessa e del suo controllo da parte dell'essere umano.

Il quarto capitolo si concentra sui nuovi impulsi filosofici e scientifici provenienti dalla cultura araba, bizantina ed ebraica che modificarono profondamente la riflessione delle società medievali a partire dal X secolo, portando alla personificazione della natura in alcune delle più importanti opere letterarie dei secoli successivi. Il quinto, invece, è dedicato alla trattazione delle conseguenze delle trasformazioni ambientali sopradescritte, quindi alle crisi ecologiche del Tardo Medioevo, per riflettere sulla nascita di nuove forme di comprensione della natura, date dall'idea che questa potesse "reagire agli abusi dell'umanità" (p. 16).

Per concludere, potremmo dire che questo libro sintetizza diversi aspetti di un tema molto ampio, scegliendo di indagare l'interazione tra società e natura nel Medioevo ponendo l'accento sul modo in cui la cultura medievale rappresentò le interazioni tra società e ambiente e "la posizione dell'essere nel cosmo" (p. 2). L'autore, nelle sue riflessioni introduttive, evidenzia il fatto che gran parte degli studi di storia ambientale nel Medioevo conservano ancora un atteggiamento trionfalista rispetto alla "conquista della natura" (p. 11), mentre altri tendono a vedere le trasformazioni ambientali, in particolare quelle climatiche, come i principali fattori di movimento della storia. In questo quadro, identifica la

sua opera come un lavoro interdisciplinare in grado di collegare l'ambiente, la storia delle scienze e della filosofia e la storia delle mentalità, dando alla natura un ruolo da protagonista attiva attraverso una concezione, che richiama quella attuale, in cui le forze e i poteri dell'ambiente naturale si dimostrano una condizione necessaria all'agire umano.

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