# 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.

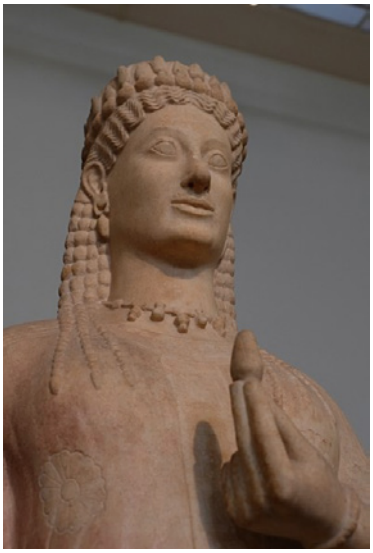

Fig. 3. Phrasikleia Kore. © Wikimedia Commons.

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".