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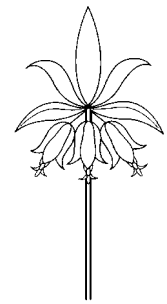

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Early evidence of "Erica": A linguistic and pictorial tracking from antiquity to the mid-16th century

Holger Funk

Abstract

Historically, the name "Erica" referred to different species of heather or to other members of the Ericaceae family. Moreover, species of the Tamaricaceae were also associated with "Erica." The present paper outlines how in a period that extended over 2,000 years from antiquity to early modern times descriptions and pictorial representations were based almost exclusively on *Erica arborea* (tree heather, a species native to the Mediterranean Basin). The emphasis on southern European plants, from regions where Greek and Roman authors were at home, later hampered the recognition of "Erica" by botanical writers based in more northern, transalpine regions. The handicap was not overcome until the mid-16th century when the English naturalist William Turner compared the authoritative ancient descriptions of heathers with the plants of his home country and pointed to *Calluna vulgaris* (formerly *Erica vulgaris*; ling or heather in modern English), a plant that is largely absent from the eastern Mediterranean. Naturalistic images of *Calluna* that supported this new focus can be found in herbals and manuscripts as early as the 1540s.

Introduction—the meaning of the plant name

Many plant names have a history that began long before the rank and status of the plants to which they were attached were codified for the first time by Linnaeus in *Species Plantarum* (1753). These plants were often known to the Greeks and Romans. One such name is *Erica*, now applied to the type genus of the family Ericaceae Juss. In the following the name *Erica* and its variants are discussed, not the species or genera to which these names have been attached.

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There is consensus among authorities on botanical names that "Erica" is of Greek origin: ἐρείκη (see for example Stearn 1996, p. 133; Quattrocchi 2000, 2:931). The variant spelling ἐρίκη (or ἐρύκη) is rare, occurring only in a few codices, for instance in Galen (Littré 1839–1861, 7:356), Plutarch (1850, p. 25) and Nicander (Schneider 1856, p. 301). Likewise, the spelling ἔρεικα seems to be a unique invention by Brunfels (1534, under "ERI"). In modern Greek, heathers native in the Hellenic world are still called ερείκη or ρείκι (plus some synonyms, see Oswald and Nelson 2009). Local variants are reported by 19th-century travelers: ρίκι (Sibthorp 1806–1813, 1:256), ῥείκη (Fraas 1845, p. 195) and, on Crete, ῥεῖκος (Stadler 1907). Remarkably, no synonyms are known from antiquity, only misapplications or confusions with other plants, particularly with the tamarisk (μυρίκη).

In antiquity, the Greek word ἐρείκη was commonly Latinized to ĕrīcē, –ēs, f. (André 1985, p. 96), not, as one might expect, to "erica."[1]

Ancient Greek plant names usually are derived from certain characteristics, such as physical peculiarities (size, color), physiological and medicinal properties, durability, uses, geographic origin, mythological and real personalities or the animals that feed on the plant (Strömberg 1940; Hardy and Totelin 2016, pp. 95–104). Thus the name of a plant can be tell-tale; at least, it rarely has no significance. Attempts were made to associate ἐρείκη with physical or medicinal properties.

Miller (1768, under "ERI"), Wittstein (1856, p. 330) and many others parroting them (see Nelson 2011, p. 107) derived the name ἐρείκη from ἐρείκειν, to rend, because the shoots could be broken easily and, moreover, in former times the flowers were considered a means of comminuting bladder stones.[2] The first suggestion was rejected bluntly by Genaust (1983, p. 159) but is at least attested by a late-antique (Byzantine) lexicon from the tenth century (Gaisford 1848, p. 372).[3] As to the second assumption, Alcock (1876, p. 125) pointed out that the alleged property of breaking bladder stones came from the Italian Renaissance herbalist Pietro Andrea Mattioli (Matthiolus). In his commentaries on Dioscorides, Matthiolus (1558, p. 109) had said that he knew some people ("novi aliquos") who had used heather for treating this complaint, but he did not connect this with etymological speculation. Matthiolus' casual remark related to his own time, and there is no evidence for such medical usage in antiquity. In the end, one must admit that in this case an etymological approach is scarcely promising. Yet, if the name of the plant is not auspicious, perhaps other ancient testimonies are.

Early Greek evidence—based on *Erica arborea*

The earliest Greek evidence does not stem from naturalists but from poets. In Aeschylus' tragedy *Agamemnon*, performed in Athens in 458 BC, we read in line 295 (see also the extensive quotation in Nelson 2011, p. 106):

> γραίας ἐρείκης θωμὸν ἅψαντες πυρί
> kindling a heap of withered heather

Next, Theocritus (fl.ca.270 BC) in his *Idylls* (5.64) mentioned a woodcutter named Morson collecting heather:

> αἰ λῇς, τὸν δρυτόμον βωστρήσομες, ὃς τὰς ἐρείκας
> τήνας τὰς παρὰ τὶν ξυλοχίζεται· ἔστι δὲ Μόρσων.
> If you like, we will shout to that woodcutter,
> who is collecting the heather there near you.
> It's Morson.

The lesson from both sources is that heather was used as fuel, which suggests that it was plentiful and that it yielded good timber. *Erica arborea* (tree heather), which is native throughout the Mediterranean Basin (Nelson 2011, pp. 200–202), was admired in antiquity for its size (Plutarch 1850, p. 25), and its wood was used as fuel for domestic ovens (Stadler 1907). Aeschylus' and Theocritus' ἐρείκη was identified as *E. arborea* by Fée (1832, pp. 35–36), Lindsell (1937) and others.

The next witness was roughly a contemporary of Theocritus, but this time he was a true naturalist: Theophrastus, the pupil of Aristotle and successor as head of the Peripatetic school, who died around 287 BC. In *Historia Plantarum* Theophrastus discussed plants bearing flowers in clusters at ends of shoots, among them ἐρείκη:

> πλείω δ' ἀκρόκαρπα τῶν ἄλλων ἢ τῶν δένδρων, οἷον τῶν τε σιτηρῶν τὰ σταχυώδη καὶ τῶν θαμνωδῶν ἐρείκη καὶ σπειραία καὶ ἄγνος καὶ ἄλλ' ἄττα καὶ τῶν λαχανωδῶν τὰ κεφαλόρριζα.

In Hort's translation (1916, 1:99) the relevant passage reads (1.14.2):

> But bearing fruit at the top is less common in trees than in other plants, as among grains in those which have an ear, among shrubby plants in ἐρείκη, privet, chaste tree and certain others, and among pot-herbs in those with a bulbous root.

Later Theophrastus added (9.11.11) that ἐρείκη grows with frankincense.

With Theophrastus, the identity of the plant becomes clearer with respect to botanical traits; his ἐρείκη is identified by all commentators as *Erica arborea*. In particular he provided two key words that frequently reappear in later

descriptions: θαμνώδης ("shrubby") and ἄγνος (chaste tree, *Vitex agnus-castus*).

So far, we had two poets among our witnesses. This is not surprising since poets are an important source of information about ancient botany (Hardy and Totelin 2016, pp. 10–11, 58–60; J. E. Raven 2000). The next author was also a Greek poet: Nicander of Colophon, who wrote in the second century BC. He is famous for two hexameter poems, *Theriaca* on venomous animals and *Alexipharmaca* on poisons and their antidotes. In *Theriaca* in lines 610–611 we read:

> Λάζεο δ' ἀνθεμόεσσαν ἄφαρ τανύφυλλον
> ἐρείκην,
> ἥν τε μελισσαῖος περιβόσκεται οὐλαμὸς ἕρπων

Gow and Scholfield (1953, p. 69) translated these lines as:

> Take next the thick-growing heath when in
> flower,
> round which the thronging bees crawl and feed

(see also the more literal French translation by Jacques 2002, p. 47, and his word-by-word comments on p. 176).

As usual, ἐρείκη was identified by Gow and Scholfield (1953, p. 230) and others as *Erica arborea*. What is interesting here is the information that the plant was attractive to bees when in bloom. This feature will recur in the next two authors, Dioscorides and Pliny, but with different accents.

While Nicander was a physician by profession, there is no indication of a medical use for the plant in his work. Generally, there is little evidence of a medical use in antiquity. In a treatise of *Corpus Hippocraticum*, titled *De Natura Muliebri* (On the nature of women), dated to the fourth century BC, ἐρείκη is listed among herbs employed in a prescription for womb inflammation (Potter 2012, pp. 240–241). In the second century AD, Galen (1826, p. 877) mentioned the diaphoretic faculties of the flower and leaves. Dioscorides, Pliny and pseudo-Galen's *Alphabet* (Everett 2012, p. 228) spread the persistent belief that the plant would be helpful against snakebites.

Dioscorides—providing the pattern of argumentation

The main sources for any discussion of ἐρείκη in ancient times are Dioscorides and Pliny, the two authorities who dominated botanical discourse for more than one and a half millennia. Though both authors wrote in the first century AD, they were probably not aware of each other. That they arrived at similar descriptions of ἐρείκη may be due to the fact that they used the same intermediate sources, among them Theophrastus (Stadler 1891; Fortenbaugh 2014, pp. 16–17), and knew the same Mediterranean flora.

Dioscorides' description is brief and concise (*Materia Medica* 1.88 Wellmann = 1.117 Sprengel):

> ἐρείκη δένδρον ἐστὶ θαμνῶδες, ὅμοιον
> μυρίκῃ, μικρότερον δὲ πολλῷ, οὗ τῷ ἄνθει
> <αἱ> μέλιτται χρώμεναι μέλι ἐργάζονται
> οὐ σπουδαῖον. ταύτης ἡ κόμη καὶ τὸ ἄνθος
> καταπλασσόμενα ἑρπετῶν δήγματα ἰᾶται.

I quote Beck's (2011, p. 65) translation:

> Ἐρείκη is a shrubby tree resembling tamarisk,
> although it is a great deal smaller; bees use
> its flowers to make honey, which is not
> particularly good. Its foliage and flowers,
> plastered on, treat snakebites.

In this short paragraph all the topics can be found that prevail from now on in most discussions: that the plant is a shrubby tree (δένδρον θαμνῶδες), that it resembles tamarisk (μυρίκῃ), that it provides inferior honey and that it is helpful against snakebites. Again, the plant is commonly identified as *Erica arborea*.

Two of the four topics were disputed or contradicted in later descriptions, as will become evident when we proceed to Pliny. First, μυρίκῃ is usually translated as "tamarisk,"

but according to other readings, it may be the "chaste tree." Second, as to the alleged inferior quality of the honey made from heathers, again this depends on the extant manuscripts: thus another Dioscorides codex does not say that the honey is "not good" (οὐ σπουδαῖον), but—nearly the opposite—that it is harvested "diligently" (ἐν σπουδῇ) by bees (see Berendes 1902, p. 106 and the critical apparatus in Wellmann 1907, p. 82).

Finally, the rich tradition of Dioscorides' work includes a codex from the tenth century (now housed at the Pierpont Morgan Library, New York) containing a unique image labelled "ἐρείκη" (Fig. 1; Janick et al. 2013; Collins 2000, pp. 59–69). This drawing is annotated with a brief text in Arabic.

Figure 1. Drawing of a plant labelled εἰρηκη (in capital letters EIPHKH) from the tenth-century Dioscorides codex Morgan 652, fol. 246r. The Arabic inscription consists of a transliteration of the Greek term εἰρηκη (irqīqī) and states that the plant resembles juniper; I thank Ahmad Al-Jallad, Leiden University, The Netherlands, for friendly assistance. The drawing might represent an example of *Erica arborea* with a massive, pollarded trunk, but as a whole the image is too crude for identification. Image reproduced by courtesy of the Pierpont Morgan Library in New York.

Pliny—increasing confusion

Greeks and Romans lived in surroundings with virtually the same vegetation (Mazzoleni et al. 2004). Thus when Roman authors began writing about plants, it was quite natural that they drew on the insights of their Greek contemporaries or predecessors. The Romans did not follow the Greeks in an uncritical manner (Hardy and Totelin 2016, pp. 33–60), and the difficulties they had to manage were more than a few. They had to transliterate Greek plant names or find or invent Latin equivalents. They also had to determine whether a plant that a Roman author was about to describe was the same as one a Greek colleague had dealt with before. Problems and difficulties often arose, as in the case of "Erica." The first Latin author in our survey, Pliny, can be considered an example *par excellence*.

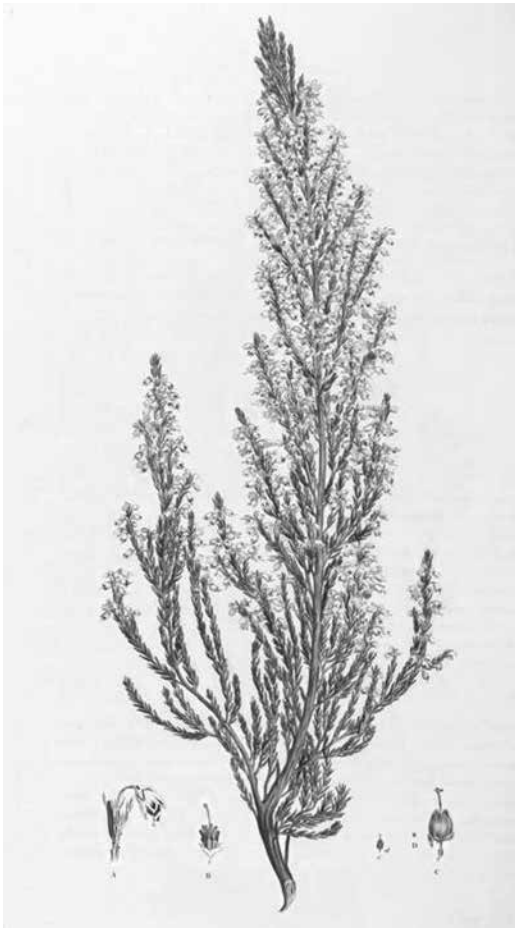
The most extensive descriptions of "Erica" come from Pliny's *Naturalis Historia*. He Latinized ἐρείκη to *erice* and dealt with it in different contexts. In book 24 on medicinal properties of trees and herbs (24.39.64), he stated (translation based on Rackham et al. 1960–1967):

> Ericen Graeci vocant fruticem non multum a {vitice | myrice | ulice?} differentem, colore roris marini et paene folio. hoc adversari serpentibus tradunt.
> The Greeks call *erice* a shrub differing only a little from the {chaste tree | tamarisk | heather?}; it has the same colour and very nearly the same leaf as rosemary. Report says it counteracts the poison of serpents.

Pliny's basic description is similar to that of Dioscorides. The alleged efficacy of erice against snakebites can be found again in 13.35.114, and also the reference to tamarisk reappears in an aggravated manner in 24.41.67 (see below). However, "tamarisk" creates

problems because the text is corrupted and the crucial words can also be read as "a vitice" (from *Vitex*, the single European species of the genus being called "chaste tree" in modern English) or as "a myrice" ("from tamarisk").[4] Both readings are plausible in terms of the plants' gross morphology: but comparing *Erica arborea* (tree heather) with *Vitex agnus-castus* (chaste tree) makes much less sense than comparing the tree heather with species of *Tamarix* (there are several tamarisks native to the Mediterranean Basin, see Figs. 2 and 3). Philologically, preferring *Vitex* accords with Theophrastus' term cited above (ἄγνος), probably the source used both by Dioscorides and Pliny.[5] André (1971), however, rejected both readings and instead suggested a third reading "ab ulice," which is also supported by one manuscript (see the critical apparatus in Janus 1880, p. XI). Commonly Pliny's "ulex" is identified as gorse (*Ulex europaeus*, see e.g. Gray 1821, p. 594); only André has equated "ulex" with *Calluna vulgaris* (ling, heather).[6]

Modern scholars have also debated Pliny's very ambiguous equation of the color and leaf of erice with those of rosemary (*Rosmarinus officinalis*). Bostock and Riley (1855, 5:28) rejected this, while Fée (1833, p. 245) and André (1971) argued, albeit implausibly, that this comparison might be reasonable. All



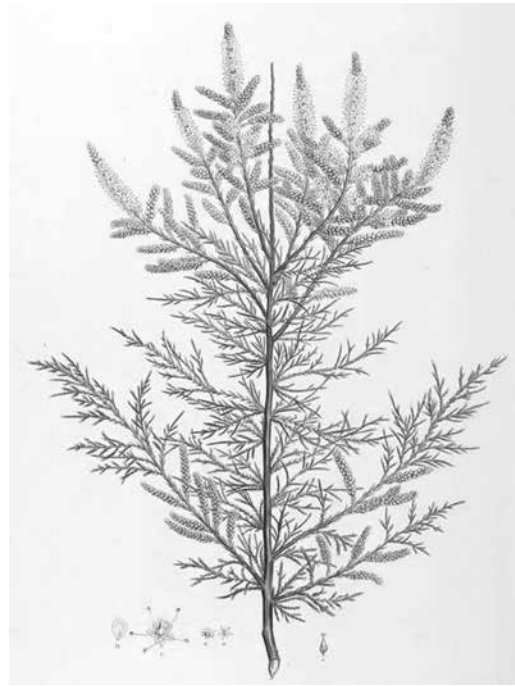


Figure 2. *Left*, J. Sibthorp (1806–1840, 4: tab. 351): *Erica arborea*. Drawn by Ferdinand Bauer.

Figure 3. *Above*, J. Sibthorp (1806–1840, 3: tab. 291): *Tamarix gallica*. Drawn by Ferdinand Bauer. Sibthorp refers to the plant described by Dioscorides, *Materia Medica* 1.87 Wellmann, which is commonly identified as *Tamarix tetrandra* Pall. ex M.Bieb. or *T. africana* Poir.

in all, Pliny's comparisons, one cannot help admitting, entailed considerable confusion.

While Pliny provided a plethora of information, unfortunately he often failed to qualify it or to provide botanical details. Pliny mostly contented himself with enumerating facts and opinions, usually on different occasions and in widely separated places within his encyclopedia, without noting discrepancies. A good example is Pliny's remarks about the identity of "Erica." While in 24.39.64 he suggested (at least according to a particular reading) that *erice* and *tamarice* did not differ much from each other (see above), somewhat later (24.41.67) certain people are quoted who even equate them:

> Myricen ericam vocat Lenaeus (…) Eandem esse arbitrantur quidam tamaricem.
> Lenaeus calls the myrice erica (…) Some authorities consider it to be the same as tamarice.
>
> [Lenaeus was a native of Athens and freedman of Pompey the Great, who was famed for his great knowledge of natural history]

Similarly in 13.37.116:

> myricen et Italia, quam tamaricen vocat
> Italy also has the myrice, which there is called the tamarice

A consequence from this confusion regarding *erice-myrice/tamarice* was that the plant names were not distinguished carefully by later authors. Names that were alternatively applied such as "Erica," "Irica" or "Mirica" reflect this chaos (see the section on incunabula herbals). The morphological similarities between the two plants as well as the phonetic similarities of the names (ἐρείκη, ἐρίκη, ἐρύκη, *erice* — μυρίκη, *myrice*) may have fostered the equation. In the 16th century, at least, meticulous botanists (for example Cordus 1561, p. 18) grappled with Pliny's heritage and tried hard to disentangle the two distinct plants and to clarify their status.

The next topic in Pliny concerns the quality (and origin) of the honey harvested by bees from heathers. This was also mentioned by Dioscorides but with different results, as we have seen, depending on the readings of the manuscripts. Pliny, by contrast, is unambiguous. In book 11 on insects (11.15.41) he says:

> Tertium genus mellis minime probatum silvestre, quod ericaeum vocant. convehitur post primos autumni imbres, cum erice sola floret in silvis, ob id harenoso simile. gignit id maxime arcturi exortus ex a. d. pr. id. Septembres. quidam aestivam mellationem ad arcturi exortum proferunt, quoniam ad aequinoctium autumni ab eo supersint dies XIIII, et ab aequinoctio ad vergiliarum occasum diebus XXXXVIII plurima sit erice.
> A third kind of honey, very little valued, is wild honey, called heath honey. It is collected after the first autumn rains, when only the heather is in flower in the woods, and consequently it looks sandy (sand-colored?). It is produced mostly by the rise of Arcturus after September 12. Some people delay the gathering of the summer honey to the rise of Arcturus, since that leaves fourteen days to the autumnal equinox, and in the forty-eight days from the equinox to the setting of the Pleiads the heather is most plentiful.

As mentioned above, Nicander had previously reported the attraction of heathers for bees. What was new in Pliny was that he stated that heather honey (*mel ericaeum*) was produced in autumn. Given that Pliny referred mostly to *Erica arborea*, his autumnal heather honey cannot have come from *Erica arborea* because it blossoms in winter and spring.[7] Pliny (or his informants) must have meant another relatively widespread Mediterranean species such as *Erica manipuliflora* that does bloom in autumn. Otherwise this would imply that Pliny was referring to one of the heather species found in northern Europe, such as *Calluna vulgaris*, without specifying this, something that contradicts his usual practice of clearly stating when plants from

specific regions were being discussed (in the context of autumn honey the Athenians and Euboeans were mentioned by Pliny, and *Erica manipuliflora* is the only autumn-blooming species in southeastern Greece).

Heather honey usually is dark and has a slightly bitter taste owing to the relatively high content of carboxylic acids (Guyot et al. 1999). Whether this peculiarity of heather honey is a fault or not was (and still is) much debated. Renaissance botanist Hieronymus Bock (1546, third part, p. 5), for instance, expressed his puzzlement at the disdain expressed about heather honey by Dioscorides and Pliny (Funk 2017).

In conclusion, most commentators agree that Pliny referred to *Erica arborea*. Taking into account Pliny's description of heather honey, he also may have referred to *Erica manipuliflora* although a reference to *Calluna vulgaris* honey cannot be ruled out.

Incunabula herbals—first incongruence

The discrepancy between northern heather species and the loyalty to southern-bound classical authorities such as Dioscorides can be observed in medieval texts; for instance, in the collection of Anglo-Saxon leechdoms (remedies; see Cockayne 1864–1866, 3:xxxii, 329). This conflict became more evident in the second half of the 15th century when the first printed herbals appeared, the so-called incunabula, written in Latin and German. Several, but not all, of these herbals dealt with "Erica" (Anderson 1983–1984, 2:61).

German incunabula were ostensibly based on the classical Greek-Latin tradition, especially Theophrastus, Dioscorides and Pliny, who were addressed as "die meister" ("the masters"). In this tradition "Erica" was called *Mirica* in Latin and, in German, *heyde*. However, the botanical descriptions clearly indicate that *Calluna vulgaris* or some other

Figure 4. Johann Wonnecke von Kaub (Cuba) (1485, p. 226): *Mirica, heyde*. Identified by Anderson (1983–1984, 1:98) as *Calluna vulgaris*.

such local species was intended, rather than the tall *Erica arborea* of Mediterranean regions. Thus, Johann Wonnecke von Kaub (or Cuba) clearly intended *Myrica gale* (bog myrtle) when he wrote (1485, p. 226) that "*Mirica*" (Fig. 4) is one arm long and the blossoms are brown.[8] According to Hieronymus Brunschwig (1500, p. 59r), the stalks of *Heyd* are one and a half spans tall and the florets purple (Fig. 5, reproduced from a colored version from 1531). The accompanying woodcuts certainly do not resemble *Erica arborea*.

In general, the early herbals focused on the medical benefits of curative waters distilled from plants. In this regard, heather was said to

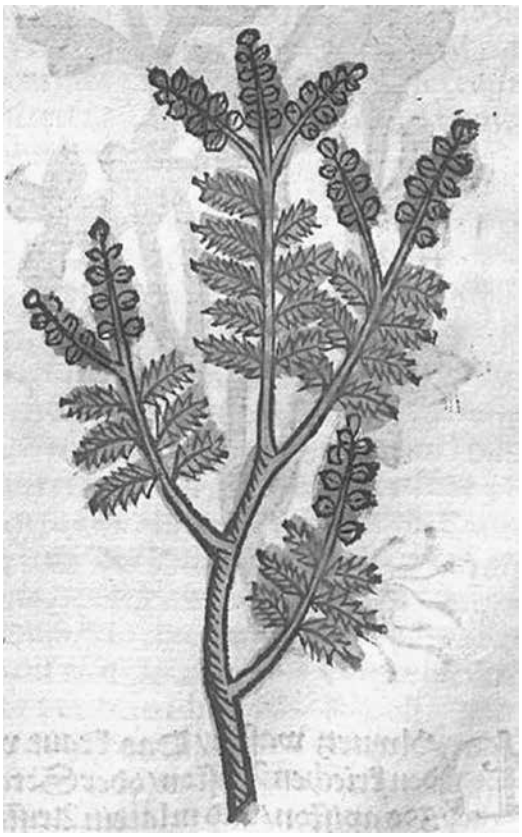


Figure 5. Hieronymus Brunschwig (1531, p. 68r): *Heyd*. Identified by Anderson (1983–1984, 1:98) as *Calluna vulgaris*.

be helpful for fevers, lumbago, gout, arthritis, leucorrhea, eye complaints and some other ailments. Modern pharmacological research suggests that some species of *Erica* as well as *Calluna vulgaris* contain compounds that may have potential uses in medicine (see e.g., Vučić et al. 2014).

William Turner—open dissent

William Turner (ca.1508–1568) was an English divine and physician who acquired a considerable reputation as a naturalist. He explored the fauna and flora of his home country, as well as mainland Europe where he lived while travelling or as a Marian exile, and presented his results in several publications (Jackson 1877, pp. XI–XVI; C. E. Raven 1947, pp. 48–137). Turner had studied at Pembroke Hall, Cambridge, and he knew "Erice" in Northumberland, his home county. In *The Names of Herbes* Turner (1548, under "Erice") remarked:

> Erice is called in greke Ereice, it is named in english Heth hather, or ling, in duch Heyd, in french Bruyer, it growth on frith and wyld mores, some vse to make brusshes of heath both in England and in Germany.

Around 1550 botanists began to wonder whether the tree-like heather of Dioscorides and Pliny was the same plant as the undershrub they knew from their home countries. In Germany Hieronymus Bock (Tragus), esteemed for his keen observations, had posed this question and cautiously rejected the equation (Bock 1546, third part, p. 5; 1552, pp. 951–952). Coincidentally, in England Turner also challenged it.

In the first edition of Turner's *New Herball* (1551, p. P. ij) there is this instructive account, referring to the well-known descriptions by Pliny and Dioscorides and correcting them with respect to what he had seen himself:

> Irica is called in greke erice, in englyshe heth hather, and lyng, in duche heyde, in frenche bruyer. Erica sayeth Dioscorides is a busshy tre lyke unto tamarisk but myche lesse, of whose flowres bees make noughty hony. Dioscorides calleth ericam a tre whiche is rather so named for the formis sake then for the hyght, for it neuer ryseth up unto the lengthe and hyghnes of a tre. Plini in the xi. Booke of hys naturall story, sayeth that the thyrde kynde of hony is wod hony and not to be commended whiche is called heth hony. Plini in the xv. chapter of the forsayde booke wryteth that erica groweth in woddes which I could neuer se. For our heth groweth in playnes and in wylde groundes, and in moyste places, and upon sum wodles hylles. I thynk that ether sylua is set for sum other worde or els Plini speaketh of thyn low busshy moyste and watery woddes, where in it is possible: for heth to grow. The hyest hethe that

euer I saw, groweth in northumberland which is so highe that a man may hyde hymself in.

Turner's account is accepted as the first published record of *Calluna vulgaris* from Britain and Ireland (Clarke 1900, p. 89). It was not, however, the first modern record from Europe as a whole. Turner was preceded by the German botanist Valerius Cordus (1561, p. 18v), who, commenting on Dioscorides, briefly referred to *Heyde* growing on Lüneburg Heath ("Lunenburgensis solitudo") in Germany. Owing to Cordus' accidental death in 1544 (aged 29), this record was not published until 1561 by Conrad Gessner (in the first posthumous edition of 1549 by Walther Hermann Ryff this passage was omitted).

The other German botanist preceding Turner was Leonhart Fuchs (1542, pp. 254r–v and 1543, p. 95), who described and depicted *Calluna vulgaris* (see next section). Interestingly, the habitats of *Calluna* listed by Fuchs were woods, mountains and sandy localities, whereas Turner emphasized it grew in wild ground, moist places and in woodless hills.

Turner's account, with minor variations, appeared in all three editions of *New Herball* (1551, 1562, 1568). The descriptions were accompanied by the same illustration that will be discussed in the next section.

Early images—departure from *Erica arborea*

Plant illustrations had been used by ancient herbalists/botanists, although they were often questionable because they ranged from naturalistic to schematic (Hardy and Totelin 2016, pp. 113–125). The earliest extant illustration of ἐρείκη dates from the tenth century, as noted above (Fig. 1); it is a highly schematic representation of what may be *Erica arborea,* but it cannot be identified with any certainty (it could just as well be tamarisk).

Figure 6. *Calluna vulgaris* "*Erice, Heyden*" from Leonhart Fuchs' *De Historia Stirpium* (1542, p. 255). This impressive original drawing served as a model for the woodcut (reproduced by Nelson 2011, p. 56).

Images of plants were a crucial component of most Renaissance herbals. They were considered indispensable in conveying the essential features of any given plant, not just to portray a specimen or to make the herbal more attractive for the reader (Kusukawa 2012). The German botanist Leonhart Fuchs (1501–1566), in particular, was of this opinion, and he is the one to whom we owe the first naturalistic representation of "Erice"—in fact, an accurate portrait of *Calluna vulgaris*—published in *De Historia Stirpium Commentarii Insignes* (Fuchs 1542, p. 254; see Fig. 6). The woodcut published by Fuchs was copied, slightly modified, for use in Turner's *New Herball*. Turner (or his printer) borrowed several images from Fuchs (Meyer et al. 1999, 1:137, 189,

Figure 7. *Calluna vulgaris "Irica, Heth"* from William Turner's *Herbal* (1568, p. 210); uncolored in the initial edition of 1551.

833), probably with Fuchs' consent since the botanists were on good terms. Figure 7 was reproduced from a colored version from the third edition of Turner's *Herball* (1568, p. 210).[9]

An acquaintance of both Fuchs and Turner was the Swiss physician and naturalist Conrad Gessner (1516–1565). After completing his multi-volume *Historia Animalium* (1551–1558) Gessner planned an equally ambitious "Historia Stirpium," but due to his premature death from the plague this project was never realized. Fortunately, Gessner's botanical manuscripts survived in two codices now housed in the library of the University of Erlangen-Nuremberg, Germany. This legacy comprises more than 1,500 illustrations (annotated in Latin and German) on about 820 folio pages. Among these are pictures of *Erica carnea* and *Calluna vulgaris*, both drawn by Gessner himself, in the case of *Erica carnea* from a specimen cultivated in his own garden (Gessner 1972–1980, 7:10, 1987–1991, 2:66, 88–89).

Gessner struggled with the identity of the two plants, in particular with *Erica carnea* (Funk 2016). In his extensive annotations (Fig. 8) Gessner quoted its German vernacular name "Steinkraut," and then referred to descriptions of conifer species from Pliny and Dioscorides and finally termed his specimen "Erica montana uel petraea" ("mountain or rock heather"). Gessner's folio predated the first published descriptions and woodcuts of *Erica carnea* by Carolus Clusius (Charles de l'Écluse; 1526–1609) from 1583 (see Nelson 2011, pp. 111–114).

Gessner's manuscript depicting *Calluna* is sparsely annotated (Fig. 9). It is headed "ERICA," but Gessner did not refer to the descriptions from Fuchs or Turner (though he was familiar with both of them) nor did he articulate a connection between this "Erica" specimen and his "Erica monatana." When the English botanist Thomas Penny (ca.1530–1588) inspected Gessner's manuscripts for a planned posthumous edition (which was also never realized), he recognized the connections. On both images Penny noted that the depicted plant was called "heath" and "ling" in English.

Fuchs, Gessner and Turner — all three dedicated Protestants — knew and respected each other. They had a common opponent in the person of the Italian physician and botanist Pietro Andrea Mattioli (Matthiolus, 1501–1577), a self-assured character who did not avoid controversy regarding plant identifications. Though there was no dispute about "Erica" among those scholars, I want to conclude my survey with Matthiolus because he too contributed accurate local observations.

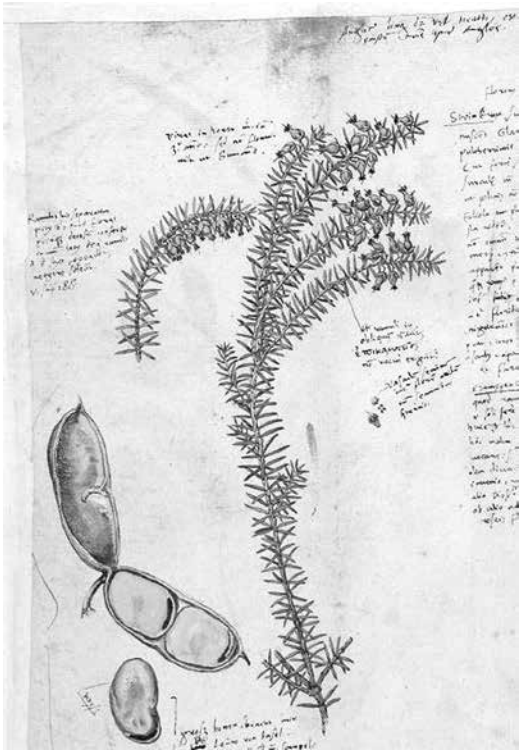


Figure 8. *Erica carnea* painted by Conrad Gessner. From Gessner's *Historia Stirpium* legacy housed at the library of the University of Erlangen-Nuremberg, MS 2386.2: 352 verso (margins cut off; see Funk 2016). Figures 8 and 9 are reproduced by courtesy of the Universitätsbibliothek Erlangen-Nürnberg.

Figure 9. *Calluna vulgaris* painted by Conrad Gessner. From Gessner's *Historia Stirpium* legacy housed at the library of the University of Erlangen-Nuremberg, MS 2386.2: 407 verso (excerpt; see Gessner 1987–1991, 2:88).

In 1554 Matthiolus added a woodcut titled "Ἐρείκη, Erica" to his *Commentarii in Libros Dioscoridis* (1554, p. 96). The corresponding text explains that Matthiolus had observed the plant in "Hetruria" (= Tuscany) and in northeastern Italy near the town of Görz (Gorizia), located at the foot of the Julian Alps bordering Slovenia, where he lived in the 1540s. The illustrator was Giorgio Liberale from Udine (ca.1527–ca.1579), who stayed with Matthiolus in Görz. The image shows *Calluna vulgaris* (Fig. 10), and the annotation describes its use to make besoms. *Calluna* occurs in northwestern Tuscany as well as in the northeastern province of Gorizia (Nelson 2011, p. 40; Feoli 2010; Borghesio 2009).

From 1554/55 until 1568 Matthiolus served as physician at the court of Emperor Maximilian II in Prague. In 1563 a sumptuous German translation/adaption of Matthiolus' Dioscoridean commentaries, edited by Matthiolus' assistant Georg Handsch, was published in Prague. The Erica entry (Handsch 1563, p. 47) contained a modified copy of an illustration of *Calluna* from the Latin 1554 edition (Fig. 11). The artist for this edition is uncertain, but some scholars have assumed that again it was Giorgio Liberale (see the discussion in Bohatcová 1985).

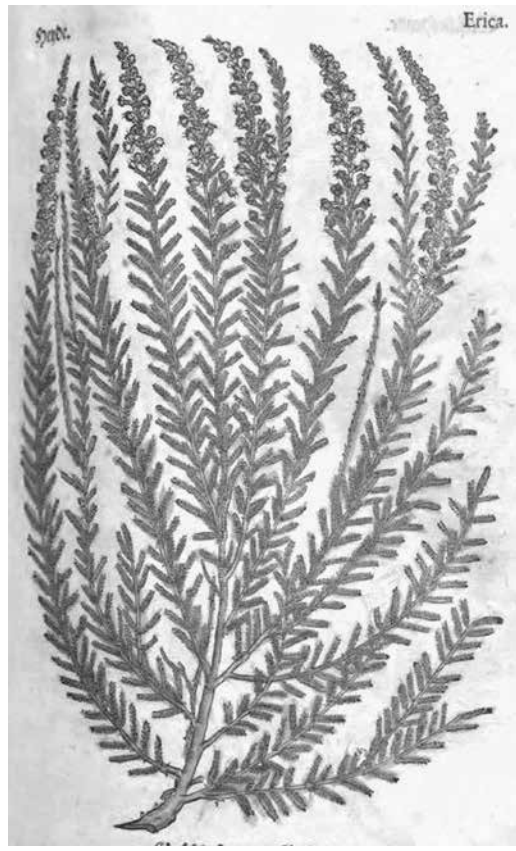


Figure 10. *Left*, P. A. Matthiolus: Ἐρείκη, *Erica* (1554, p. 96) in his *Commentarii in Libros Dioscoridis*.

Figure 11. *Above*, Georg Handsch: *Heyde*, *Erica* (1563, p. 47) in the German version of Matthiolus' *Commentarii*.

Discussion/Conclusion

In classical antiquity a certain tall plant used as kindling and fuel was called ἐρείκη in Greek and *erice* in Latin. The meaning of this name, if any, remains uncertain, perhaps relating to the fragility of its branches. The variant spelling *erica* appears once in Pliny and only became commonplace during the Renaissance.

Medicinal uses of ἐρείκη-*erice* were rarely reported in antiquity. It was mentioned as an antidote against snakebites (a purported property of many kinds of plants in antiquity) or as a remedy for inflammation of the womb (again, an alleged property of other plants). In the late 15th century, herbal incunabula included some more medicinal uses (Cuba 1485; Brunschwig 1500), as did Renaissance herbalists, such as Matthiolus (1554, 1558). By contrast, Fuchs (1542, p. 254, 1543, p. 95) explicitly stated that the plant was not used in apothecaries' shops ("officinis").

Scholars of classics agree that the name ἐρείκη-*erice* in ancient texts refers to *Erica arborea*, a shrub or small tree typical of the evergreen vegetation in the Mediterranean Basin. Remarkably, there are almost no references in ancient texts to the other *Erica* species indigenous to Greece and Italy such as *E. manipuliflora* and *E. multiflora*.

The authoritative descriptions, referred to in most Renaissance herbals, came from Dioscorides and Pliny, and to a lesser extent from Theophrastus. All three authors are to be respected as the first to have provided botanical information about heathers. However, owing to the ancient predilection of simply comparing a new plant with an already known one, instead of offering new botanical details, much confusion was created. Thus ἐρείκη-*erice* was compared to the chaste tree and to the tamarisk (*myrice*) and in the end was lumped together with the latter — there is a superficial resemblance in the habit and foliage of *Tamarix* species and heathers (*Erica* spp.).

Special attention was paid to heathers as nectar providers. This was noticed first by Nicander in the second century BC. Dioscorides' casual and philologically precarious remark about the inferior quality of heather honey was frequently reiterated, first by Pliny, and again in Renaissance times.

Throughout the Middle Ages until the first printed records in the German incunabula the descriptions were guided by Dioscorides and Pliny. Not until the middle of the 16th century did anyone query the descriptions. William Turner, in *A New Herball* (1551), compared the ancient reports with his own observations of heather in his home country and noticed that they did not match. By then, the shift away from Mediterranean to transalpine regions, from *Erica arborea* to *Calluna vulgaris*, was clear in pictures *and* words.

Depicting heather plants began in the tenth century. An illustrated codex of Dioscorides' *Materia Medica* has a drawing labelled "EPEIKH," perhaps a schematic representation of *Erica arborea*. German incunabula of the late 15th century included woodcuts probably representing *Calluna vulgaris*. Sixteenth-century herbals included accurate, colored portraits of *Calluna* by Fuchs (1542), Bock (1546) and Turner (1568). The most impressive watercolor drawings stem from the unpublished botanical legacy of Conrad Gessner created in the early 1560s, representing for the first time *Erica carnea* from his Swiss home and again *Calluna vulgaris*. The fourth Renaissance herbalist to provide naturalistic, colored images was P. A. Matthiolus (1554 and 1563, in an edition by his assistant Handsch), who had observed *Calluna vulgaris* in northwestern and northeastern Italy.

From the end of the 16th century knowledge of plants labelled/identified as "Erica" — not all belonging to the modern genus — expanded rapidly. Gerard (1597, pp. 1196–1198) described and depicted as many as ten species. L'Ecluse (1601, pp. 41–46) had twelve. Bauhin and Cherler (1650) listed 19 different kinds. Linnaeus enumerated 23 species in *Species Plantarum* (1753, pp. 352–356), including several from southern Africa.

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Notes

1. The spelling "erica" occurs only once, in Pliny's *Naturalis Historia* (24.41.67). "Erica" did not become common until Renaissance times, for instance in Gaza's translation of Theophrastus' *Historia Plantarum*, section 1.14.2 in modern editions (1483, no pagination).
2. In fact, in Greek and Roman botany two plants existed that bore their reputed stone-breaking properties already in their names: σαξίφραγον-*saxifragum* (*Asplenium trichomanes*) and ἔμπετρος-

calcifraga (*Frankenia pulverulenta*), see Strömberg (1940, p. 97).

3. However *not* in Hesychius' famous Lexicon (Schmidt 1867, p. 619) from the fifth century.
4. The Romans had two names for "tamarisk" (species of the modern genus *Tamarix*, Tamaricaceae): *myrice* (or *myrica*), Latinized from Greek μυρίκη, and *tamarix* (or *tamarice* and numerous other variants), possibly likewise derived from the Greek term but, as is suspected, of African or Semitic origin (Genaust 1983, pp. 255, 358). The classical Latin "myrica" is not to be confounded with species of the modern family Myricaceae such as *Myrica gale* (bog myrtle). The first known references to bog myrtle in European texts (as additive to beer) are from the late tenth century.
5. It seems that besides botanical traits also folk-biological beliefs about the chaste tree were transferred to "Erica." Thus a Greek Nicander scholiast (see Geymonat 1974, p. 159; Schneider 1856, p. 101) ascribed to ἐρείκη anaphrodisiac effects that were well reputed for the chaste tree (expressed in the latter's name), see Wagler (1894).
6. André's translation (2003, pp. 48, 115) reads: "Les Grecs donnent le nom d'éricé [*Erica arborea*] à un arbrisseau qui diffère peu de la bruyère [*Calluna vulgaris*], ayant la couleur et presque la feuille du romarin."
7. Honey is produced from various heather species in the Mediterranean Basin; in Spain and Greece from *Erica arborea* among others, while in northern Europe the principal source of nectar for heather honey comes from *Calluna vulgaris* (Persano Oddo et al. 2004; Louveaux 1977).
8. Attention should be paid to the difference between the traditional *Mirica* and the modern botanical *Myrica*, expounded in note 4.
9. Actually, it is a revised version of the 1551 (first part) and 1562 (second part) edition, expanded by a new, third part.

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