

Plant Series, No. 2. Manuscript MS408. Portfolio 2, Right (JPEG 005). Gerard E. Cheshire.**Abstract.**

The plants individually described in Manuscript MS408 have all been identified as species from the environs of the Mediterranean Basin, in accordance with the location of origin for the manuscript. This series of papers presents each plant species separately with a translation of its accompanying text and any relevant cross-reference information. In addition to the linguistic value, there is plenty of historical, cultural and scientific knowledge to be gleaned from each of these manuscript pages, so they will be of interest to scholars from various disciplines.

Manuscript MS408 originates from Castello Aragonese, Ischia. It was written as an *aide-memoire* for Maria of Castile, Queen of the Crown of Aragon, c. 1444, whilst her husband, Alfonso V, was conquering the City of Naples. The manuscript remained in the castle library until 1912 when the citadel was sold into private hands by the Italian government and its contents were removed and traded off. Two years later the document found its way out of Italy and the nation unknowingly lost an important part of its heritage.

Within the manuscript there is a series of illustrations of medicinal herbal plants with accompanying text. This project identifies the plant species and translates the text to reveal the information imparted by the author and artist of each entry. The algorithmic method, of priority array queuing, was used to translate and identify the words in the text, as described in the following paper: <https://ling.auf.net/lingbuzz/004653> The method takes Latin as the principal source, with Old and Modern Romance as the secondary and tertiary sources. We can see that the language is placed somewhere between Latin and Romance in linguistic evolutionary terms: i.e. it is a vestigial form of prototype Romance.

Palaeography from historic languages and writing systems is never an exact science, especially when both are unfamiliar, but the subsequent transliterations into English phrasing provide adequately legible intention of meaning. In addition, many of the words are unambiguous in their Latin root and the text cross-references with botanical and medicinal information about the plants described in the images, so serving to verify the methodology.

The plant images are naïvely and inaccurately drawn and coloured, as the artist was untrained and should be viewed as simplified cartoon representations rather than anatomical illustrations. The images also focus on the relevant medicinal or culinary parts of the plants, so that the specimens are often incomplete, disproportionate, unscaled and shown in varying stages of development from young seedlings to mature plants in seed. A few of the images also contain additional pictorial information or annotations to highlight particular points for identification.

Some of the plants would have been grown in the physic and vegetable gardens of Castello Aragonese or else collected from Ischia island. Others would have been purchased from herbal plant suppliers travelling from mainland Europe, as dead specimens collected in the field and preserved by desiccation. Tinctures and essential oils would also have been available for purchase. It is apparent that the illustrations essentially function in substitution for the plant names, simply because scientific names were not yet conceived, and common names would have varied regionally. So the combination of visual and written information was intended to enable the reader to identify the species and use them for medicine or food accordingly.

Plant No 2. Species:

Dry-flowered Saw-wort. *Serratula erucifolia*. Synonyms: *S. xeranthemoides*, *Klasea erucifolia*. The various species from the *Serratula* genus were traditionally used to heal wounds and ruptures¹ and were also used as a source of yellow dye for textiles², containing the flavonoid pigments apigenin, luteolin and quercetin. The best known is Dyer's Saw-wort *Serratula tinctoria*, which is found in temperate Europe. This particular species is found in the eastern Mediterranean region, thus the text mentions having to purchase the plants for medicinal use. The leaves of this plant genus typically have serrated or saw-tooth edges, hence the genus name and common name, but this plant has the species name '*erucifolia*' because its upper leaves are similar to those of

the rocket, or roquette, plant (*Eruca sativa*): i.e. elongated and narrow, with smooth edges. Due to the linguistic root '*erucifolia*' translates as caterpillar-shaped leaves, which is appropriate. The lower leaves are pinnate with smooth edges. The petals are whitish with a hint of mauve. The seed-heads have whitish-yellow paper-like papuses arranged in a cone-shaped stack, rather like a small pineapple or a feather shuttlecock. The green sepals are scale-like, often with reddish dots and the long flower stems often have a reddish tinge, due to the pigment concentrations. These are produced by the plant as protection against disease and parasitization, which is why they also have medicinal antimicrobial benefits. It is a plant of arid and exposed hillsides and is rather scarce. Like plant No. 1. this species is likely to have been more common in the Mediterranean region originally, before over exploitation due to medicinal and cultural demand.

Translations & transliterations:

1. la naisa [v. la naissa: the birth. French] apéor [pleasant, nice. Spanish] naus [food. Vulgar Latin] om [person. Old French] éar [proceed. Latin] a péaus [to provide. Latin] ele [she, her. Old French] orta [arrive. Latin]
2. nos [we. Latin] éosa [that, which. Spanish] élas [females (plural). Portuguese] t (terminus) Latin] æos [they. Latin] eme a emo [buy to acquire of. Latin]
3. domaus [to subdue. Latin] eme [acquire. latin] ea a é'os éa [and it's for it. Latin, Portuguese] ana [medicine in equal amounts. Italian] éaus [waters. Old French]

Note: The French term naissa (birth) is found in the phrase 'acte de naissa' (birth certificate).

Note: The word ea means it, she, he in Latin, while the word éa means a, an in French.

Note: The Italian term ana (medicine in equal amounts) is derived from the Greek aná (of each).

Food for the pleasant birth, which we give expectant mothers when the time arrives. We buy it to acquire it, for subduing as medicine and we mix it with water in equal amounts.

4. æ [abb. æqualis: equals. Latin] auna [measure of. French] émon [remove. French] na [at, in. Portuguese] epea [term. Galician] nart [large, full. Galician] é o [is of. Portuguese] laus [praise. Latin] n [nostri. our. Latin]
5. o m o [abb. omni mane oro: every morning please. Latin] é'os [it's for. Latin] ar [again. Old Portuguese] æo naus [to the food. Portuguese, Vulgar Latin] éor [sister. Latin] nas [in her. Portuguese] a [and. Portuguese] méaus [follows. Latin] nas [in her. Portuguese]

Note: The Latin o m o (omni mane oro) is a standard abbreviation. A companion phrase is o n o (omni nocte oro) which means 'every night please'.

Give equal amounts of praise to remove the full-term (pregnancy). Every morning please, our sister must get the food in her, and again in her.

6. taus [v. theos: god. Latin from Greek] n [our. Latin] aes [debt. Latin] n n [nomen nescio (name unknown) or nomen nominandum (to be named). Latin] lor [to them. Old French] tos amor [abb. sentimientos amorosos. love feelings. Spanish, Portuguese] na [for. Galician] néor néa [to weave newly. Latin from Greek] eme a [acquire of. Latin]
7. æos [them. L] ele a [she to. Old French] nausa [v. nauza: nausea. Galician] éor [sister. Latin] nas [in her. Portuguese].

Note: The word taus (god) derives from Theos (Θεός), pronounced Tayus, which is a generic Greek term for a male god, with Thea (Θεία) being the female equivalent.

Note: The phrase *sentimientos amorosos* is commonplace in Spanish and Portuguese speaking countries.

Note: The words *naus* (food) and *nausea* (nausea) have the same root, as the allusion to food comes from the hull-like food bowl, and the allusion to nausea comes from sea-sickness.

Note: The reference to the god with no name (the Christian god) stems from all other contemporaneous Pagan gods having particular names, such as *Vulcan*, god of the underworld, who is actually called *Osas* in the manuscript, which means 'angry' or 'displeased' in Vulgar Latin. Also, see the spirit *nais* and the goddess *nrt* (lines 8 and 9 below).

Our debt is to the Christian god (he without name) for weaving new feelings of love when the nausea is in our sister.

8. *la nais* [the nymph (unborn baby). Latin from Greek] æ [*e dans l'a*: it's in the. French] *aus* [abb. australis: below. Latin] [*doa* [pain, hurt. Portuguese] *t* [terminus. Latin] æor [proceed. Latin] *quo nas* [where in her. Latin, Portuguese] *elæ* [she. Galician] or [now. Italian] æi *ea* [you have it. Italian] *n* [*nostrae*: our. Latin] *aur* [abb. aurum: golden colour. Latin] *na* [for. Ga]
9. *nrt* [*nrtya*: dancing mother spirit. Latin] æo [towards. Galician] *lor* [to them. Old French] æi *ea* [you have it. Latin] *dolea* [suffer, grieve. Latin] *alona* [halo. Italian] *so* [under Old Spanish] éor [sister. Latin] *a la* [of the. French] *nais nausor* [nymph sickness. Latin]

Note: *nais* is the name of a naiad-nymph spirit of the water, of southern Greek origin. Thus, an unborn baby was thought of as a water nymph within the amniotic fluid sac of the womb. A related word is *naius* (to emerge) in Latin.

Note: *nrt* is the name of a Pagan protective spirit, otherwise known variously as *nrtya*, *nritya* or *nrtiyati*: the dancing life spirit of men and women. She was one of the 'astamatarā' or mother goddesses. The word *nrtya* originates from Sanskrit, which was the eastern equivalent of Latin and Greek, with all three languages influencing one another.

Note: *aurum* (golden) alludes to the yellow pigment of the plant, which was believed to represent *nrtya*, according to Medieval logic, and was also used for dying textiles. The extract was also used traditionally to tighten and heal wounds and ruptures. In scientific terms the dye does contain vulnerary (wound healing) and astringent (cellularly contractive) chemicals.

For when the unborn baby causes pain below. The golden colour is *Nrtya*, the dancing mother spirit, who places the sister under a halo of love during the labour (nymph sickness).

10. *dola* [shape. Latin] éor [sister. Latin] *aus* [abb. australis: below] æor [proceed. Latin] æ [it's in the. French] *ela* [she, her. Old Portuguese] *naus* [food. Vulgar Latin] *emeia* [acquired. Latin] *lior* [smoothness. Latin] *t* [terminus. L] *aus* [abb. australis: below. Latin] *t aus* [abb. triumphalis: triumph below. Latin]
11. *aé aes* [see you. Portuguese, Spanish] *nar* [death, badness. Latin from Sanskrit] éa [(illa) which. Latin] *naros* [flowing. Latin from Greek] æ *as nas* [it is, in her. Portuguese] *ort aus* [abb. abortus: abort below. Latin] æi *ea* [you have it. Latin] *eleos* [mercy, kindness: Latin from Greek]
12. *o lor* [of them, their. Old French] éa [which. Latin] é'os [it's for. Portuguese] (h)emeos [v. hæmos (haimos): bloods. Vulgar Latin from Greek] *a os* [to us. Portuguese] *as* [these. Portuguese] éas [I have. Latin] *t* [terminus. Finish. Latin] *aus* [below] é *e ma* [and is bad. Portuguese] éa (a. French) *la* [the. French] 'tar [abb. estar. to be. Portuguese]
13. æo [go to. Galician] *a leia* [to read, monitor. Portuguese] é [to be. Galaician] *ea* [is. Latin] *naus* [food. Vulgar Latin] é [to be. Portuguese] *eme a* [procure, provide it. Latin].

Note: The silent h, as with the word (h)emeos, is frequent in the manuscript, such that there is no symbol for the h phoneme in its alphabet due to the dialect.

Note: It is also common for the Romance languages to silence es at the start of words such as *estar* (to be), so that it becomes abbreviated to 'tar.

The food shapes her with smoothness for finishing below. If you see death flowing below in her, then you have it to abort with mercy for them which bleed, and if it is bad it is necessary to monitor and provide the food.

Additional label; to the right of the plant.

14. amo [v. amar/amare: caring, loving. Catalan, Galician, Italian] airé [to nestle, embrace. French].

Love embracer.

In summary the text reads:

Food for the pleasant birth, which we give expectant mothers when the time arrives. We buy it to acquire it, for subduing as medicine, by mixing with water in equal amounts. Give equal amounts of praise to end the pregnancy. Every morning please, our sister must get the food in her, and again in her. Our debt is to the Christian god (he without name) for weaving new feelings of love when the nausea is in our sister.

For when the unborn baby causes pain below. The golden colour is Nrtya (the dancing mother spirit) who places the sister under a halo of spiritual love during the labour (nymph sickness). The food shapes her with smoothness for finishing below. If you see death flowing below in her, then you have it to abort with mercy for them which bleed, and if it is bad it is necessary to monitor her and provide the food.

Discussion:

In contrast with Plant No. 1. *Atropa baetica* (<https://ling.auf.net/lingbuzz/004797>), which was used for deliberate termination of unwanted pregnancies, Plant No. 2. *Serratula erucifolia*, was used to assist with birthing and to provide some comfort when complications arose, as it was believed to convey spiritual love to the patient. The key characteristic of the plant is its yellow pigment, which was believed to symbolize the protective spirit of the goddess Nrtya, according to naïve Medieval logic. Elsewhere in the manuscript, the golden colour of olive oil is similarly highly regarded. This was because yellow is the colour of sunlight, in opposition to darkness. The text indicates that the herb had a subduing or tranquilizing effect on the patient.

We can see from the photographs in Figs. 2 & 3 that the artist is reasonably accurate with the illustration in the manuscript – Fig. 1. The seed-heads, stems and leaves are all drawn and coloured sufficiently well to be diagnostic of the species, which was the purpose of the image in the absence of a contemporaneous name in the text. As the plants were purchased from a tradesman visiting the island, they would have been dried specimens. The 18th century plant engraving, shown in Fig. 5., is described as *Serratula xeranthemoides*, which is an old name for the same species. Here, the species name 'xeranthemoides' alludes to the dry and spikey outer perianth (tepals), similar to those of *Xeranthemum* flowers: xeransis is the drying of tissues. The alternative genus name 'Klasea' is derived from the Scandinavian 'klase' for 'cluster' as the plants are perennial and develop into mature clusters with many flowerheads, as seen in Fig. 4.



Figure 1. Portfolio 2, Right. Dry-flowered Saw-wort. *Serratula erucifolia*. The image shows the plant in seed.



Figure 2. Photographs of *Serratula erucifolia*. The blooming flower is shown, left, and papery seed-heads, right, as seen in the manuscript, stacked in the manner of a pineapple, with the reddish dots on the scale-like sepals.



Figure 3. Photograph of *Serratula erucifolia*, showing the distinctive flowerheads, the long reddish stems and the lanceolate leaves characteristic of the species. A mix of flowers and seed-heads is seen.



Figure 4. Photograph of *Serratula erucifolia*, showing the mature plant flower and seed-head clusters.



Figure 5. Engraving of *Serratula erucifolia* (*S. xeranthemoides*) of 1749 by D. Joanne Georgio (Johan Georg) Gmelin (1709-1755). *Flora Sibirica*, Vol.2. Plate 47, Fig. 1. Petropoli, Typographia Academiae Scientiarum.





























Citations:

1. Tel, G. et al. 2013. Fatty Acid Composition, Antioxidant, Anticholinesterase and Tyrosinase Inhibitory Activities of Four *Serratula* Species from Anatolia. *Records of Natural Products*. Vol. 7. No. 2. pp. 86-95. DOI:
https://www.researchgate.net/publication/273692729_Fatty_Acid_Composition_Antioxidant_Anticholinesterase_and_Tyrosinase_Inhibitory_Activities_of_Four_Serratula_Species_from_Anatolia
2. Petroviciu, I. 2014. Flavonoid Dyes Detected in Historical Textiles from Romanian Collections. VIth Mass Spectrometry and Chromatography Conference. DOI:
https://www.researchgate.net/profile/Irina_Petroviciu/publication/266022659_Flavonoid_dyes_detected_in_historical_textiles_from_Romanian_collections/links/5423367c0cf26120b7a6be37.pdf

Further reading:

1. Plant Series, No. 1. Manuscript MS408: <https://ling.auf.net/lingbuzz/004797>
2. The Language and Writing System of MS408 (Voynich) Explained.
<https://www.tandfonline.com/doi/full/10.1080/02639904.2019.1599566>
3. Linguistic Missing Links. <https://ling.auf.net/lingbuzz/003737>
4. Linguistically Dating and Locating Manuscript MS408. <https://ling.auf.net/lingbuzz/003808>
5. Consonants & Vowels, Castles and Volcanoes. <https://ling.auf.net/lingbuzz/004381>
6. The Algorithmic Method for Translating MS408 (Voynich). <https://ling.auf.net/lingbuzz/004653>

Symbol key for Manuscript MS408. Gerard Edward Cheshire. University of Bristol. www.sciencesurvey.ink

Symbol-Italic key for MS 408.			
Symbol	Italic	Symbol	Italic
	a (trapped)		a (free)
	ais		aus
	æ (ae, a, e, i)		d
	e (short)		e'e (intonation)
	é (long)		i
	l (ll)		ele (elle)
	m (mm)		eme (emme)
	n (nn)		o
	p (pp)		epe (eppe)
	qu		eque
	r (rr)		s/z (ss, zz)
	s/z (ss, zz)		sa/za
	t (tt)		ta
	u		v, f, fv, ph, pv