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The Manuscript and the Meandering Mind

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This article answers frequent inquiry about how the solutions were found for the writing system and language of Medieval manuscript MS408, as described in the peer-reviewed *Romance Studies* journal paper titled: *The Language and Writing System of MS408 (Voynich) Explained.* (Cheshire, 2019) As finding the solutions was largely intuitive, then explaining how it was done is something of a challenge in and of itself.

The first detail is that no effort was invested in researching previous attempts by other scholars, working on the simple logic that they must already have covered all possible combinations of potential letter symbols and languages, given that so many had tried over so many years. It was therefore possible to reason that the solution required an intuitive approach. So, the starting point was to consider the manuscript afresh, with an open mind, unpolluted by the ideas of others or any prior linguistic rules. The metaphorical canvas was left entirely blank to allow complete freedom and flux in ideas and thought experimentation.

The methodology was initially straightforward. All manuscript symbols were recorded, by examining every page, until no new symbols could be found. Relative counts of the symbols were then made, by using a couple of pages, in order to get an idea of their likely correspondence with letters in the Italic alphabet, based on the notion that the manuscript was probably southern European, given the visual information provided by the manuscript illustrations, such as the human figures, their clothing and their material culture.

It was found that some of the symbols had far higher frequencies of occurrence than others and were therefore likely to be the vowels. They were also diminutive is size, suggesting vowels. However, there were more than five, so it was postulated that they probably represented pronuncial variants that are now distinguished by accents. Thus, it made sense to have two letter 'a' variants and three letter 'e' variants, with letters 'i', 'o' and 'u' as single symbols. It also became apparent that one symbol combined 'ae', which logically represented

the diphthong 'æ' and is pronounced as the hard 'i' or 'I' (*eye*) in the modern world. So, the manuscript has nine vowel symbols. A number of these vowel symbols were also seen to be conjoined with some of the remaining consonant symbols, which were yet to be identified.

The consonant identities were trickier to fathom as, unlike the vowels, their forms were often very different from their modern counterparts. It was also apparent that they were fewer in number than the consonants of the modern Italic alphabet. The methodology was to run many experiments with short manuscript words and to cross reference those possible words with Latin to see whether there was a feasible match. In this way, the consonants were gradually assigned likely identities. Their symbols were also researched in order to find clues as to their cultural points of origin, which predated the Roman and the Greek.

Using this approach, their most likely identities were postulated in sequence – d, l, m, n, p, qu, r, s, t, v/f. It became apparent that the reason why some of the modern consonants are missing is that they either shared symbols due to phonetic similarity, such as c, ç, s, z, x, or because they were phonetically silent or junctural such as b, g, h, gh, j, k, ch, ck.

Whilst identifying the consonants, it was noticed that if words were not found in Latin, they were often found instead in other languages descended from Latin: i.e. Romance languages. So, the logical deduction was a manuscript language somewhere between Latin and Romance, which is often described as proto-Romance or Vulgar Latin, as it was the spoken Latin of the lay population (vulgus). It has transpired since, that the language is more precisely a hybrid of an Iberian variant of Vulgar Latin, known as Galician-Portuguese, with some Latin and Greek. Aside from the Latin and Greek inclusions, all manuscript words can now be found scattered among the various Iberian Romance languages: Aragonese, Asturian, Balear, Catalan (Valencian), Galician, Leonese, Mirandese, Occitan, Portuguese, Spanish (Castillian).

The Graeco-Iberian linguistic marriage was explained by close examination of a narrative map among the pages of the manuscript (Cheshire, 2018). The map describes a rescue mission by ship, from the island of Ischia to the islands of Vulcano and Lipari, following a volcanic eruption that began at Vulcano on 4th February 1444 (Frazzetta et al, 1984). At that time Ischia and its citadel, Castello Aragonese, were in the possession of the Crown of Aragon, under Alfonso V, thereby explaining the Galician-Portuguese language (Bisson, 1986). In addition, Ischia historically had a diasporic Greek population and an Orthodox Basilian monastery and nunnery within the citadel, thereby explaining the Greek ingredient of the manuscript language and the archaic forms of various consonant letter symbols (Donnellan, 2016). Thus, although Ischia lies close to Italy, its linguistic cultural history had been discrete.

The writing system is idiosyncratic in several respects. For example, there are no double-consonants, and all letters are in lowercase. There is also an absence of any punctuation marks, and the words of set phrases are often conjoined with no indication of division points. In

addition, there are Latin initial-letter abbreviations which was common practice in Medieval manuscripts to save space. Then there are the, aforementioned, combinations of consonant and vowel symbols to contend with, such as: ais, aus, ela, ele, eme, ema, epe, epa, sa, ta.

Perhaps the most beguiling detail is the pronuncial nature of the spelling throughout the manuscript, which imitates speech, so that many consonants are omitted, because they were not voiced, thus requiring the translator to insert them where appropriate and to choose the correct consonants. The writing system is therefore somewhat flawed in its communicative design, as its pronuncial system and lack of formal grammar result in some ambiguity in exact transliteration and interpretation of the text. Nevertheless, the essence of its meaning is usually quite apparent due to the presence of unambiguous words and the contextual setting they provide.

Subsequent translations of various herbal plant pages from the manuscript have served to verify the identity of the vowel and consonant symbols and to improve the translation process by cross-reference with contemporaneous historical information and botanical information (Cheshire, 2021). As a result, a lexicon for the manuscript is being compiled, which is exponentially improving the accuracy and speed of the translation process. Both semantics (meaning) and syntax (structure) are now reasonably easy to arrive at with a high degree of confidence, thereby facilitating paraphrasing in modern parlance.

In conclusion, the writing system and language were explained and identified by deploying a logical and systematic approach in combination with experimentation, extensive research, lateral thinking, intuition and, lastly, a presumption of the mundane. That final point is important as it constrained ideas entirely to using the available information (data). That is, it eliminated any temptation to imagine information and connections that were not present.

Avoidance of both confirmation bias and negation bias is part of the scientific discipline, so that results can be considered impartial. The aim is to arrive at the most likely explanation, rather than unequivocal acceptance or rejection of the hypotheses that comprise a theory. In that light, the described explanation for the writing system and language seems to be correct based on many thousands of experiments and associated cross-reference. Above all else, application of theory and method consistently produces reasonable translations, which is the objective of any translation technique. After all, we unthinkingly do the same when we read text using a more familiar writing system and language, such as the text on this page.

There is no reason to suppose the manuscript codex was devised as a deliberate cipher or code, as the main contents address only the workaday observations and knowledge of its author, regarding her duties as general practitioner and midwife to the court. It may have been serendipitous though, that only she and her fellow nuns were able to read it, as it addresses all manner of gynaecological and medical matters where etiquette might have required discretion

in polite male company. In essence, the manuscript is a 15th century gynocentric almanac on nutrition, seduction, copulation, reproduction, termination, illness, disease, aging, therapies, treatments, remedies, philosophies and beliefs as part of daily life within the fortified confines of the citadel, whilst Alfonso and his armies were away conquering nearby Naples.

The hybrid language of the manuscript would naturally have arisen to enable the Iberian newcomers and the Ischian indigenes to communicate, whilst the writing system seems to have been the product of the monastic environment, whereby vestiges of the Greek (*Phoenicia grammatica*) alphabet became mixed with partial knowledge of the Romance (*Italicus grammatica*) alphabet, but within an informal and pronuncial framework.

It is worth mentioning too, that computational methods could not have arrived at the solution for this writing system and language, because such methods merely accelerate and scale-up the very same processes of trial and error attempted on paper. The thinking behind the solution was more dynamic than that, and therefore required a freeform approach to problem solving that was developmental in its momentum. That is why it required a certain kind of human brain as, in computer terminology, the solution came with an ability to alternate and meander between various application programs to make progressive connections. A computer could only solve a writing system by already knowing the language, or vice versa, so it was the ability to solve both simultaneously that designated it a human task.

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