

Linguistic missing links: instruction in decrypting, translating and transliterating the only document known to use both proto-Romance language and proto-Italic symbols for its writing system.

(Companion: Linguistically Dating and Locating Manuscript MS408. <http://ling.auf.net/lingbuzz/003808>).

GERARD EDWARD CHESHIRE

University of Bristol

Abstract.

This paper provides the solution to understanding the hitherto unknown writing system used for the manuscript listed as MS 408 at the Beinecke Library, Yale University. The writing system uses symbols, punctuation, grammar and language that are each unique. The manuscript is not encrypted, in the sense that its author made an effort to conceal the contents of the manuscript, as has been presumed by some scholars. Instead, it is code only in the sense that the modern reader needs to be versed in the calligraphic and linguistic rules to be able to translate and read the texts. Furthermore, in discovering its writing system, it became apparent that the manuscript is of invaluable importance to the study of the evolution of the Romance languages and the scheme of Italic letters and associated punctuation marks now commonplace in those and other modern languages. In short; it is revealed to be the only known document both written in Vulgar Latin, or proto-Romance, and using proto-Italic symbols. The original title for the manuscript, given by its female author, is: *What one needs to be sure to acquire for the evils set in one's fate*. It is a book offering homeopathic advice and instruction to women of court on matters of the heart, of sexual congress, of reproduction, of motherhood and of the physical and emotional complications that can arise along the way through life.

The manuscript has now been dated to the year 1444 and the location of its creation has been pinpointed to the court of Castello Aragonese, on the island of Ischia: as expounded in the companion paper *Linguistically Dating and Locating Manuscript MS408*: <http://ling.auf.net/lingbuzz/003808>

Keywords: Mediaeval manuscript, Vulgar Latin, Koinê Latin, proto-Italic symbols, proto-Romance, decryption, translation, transliteration, palaeography, codicology, Ischia 1444.

Introduction.

Beinecke manuscript MS 408 has garnered a certain level of notoriety in scholarly and popular circles, because its coding has remained unsolved since its earliest known description by Georgius Barschius in 1637 (Barschius, 1637; Kircher, 1639) who was court alchemist to Rudolf II of Prague (1552-1612). Since then many people have invested time and effort in attempting to read its texts (D'imprio, 1976; Rugg, 2004; Pelling, 2006). Perhaps inevitably, this has led to all kinds of speculation as to its origin and meaning. For example, it has been suggested that it might be a mysterious book of black magic or secret knowledge (Clemens & Harkness, 2016); that it was written by a famous historical figure who wished to remain anonymous (Brumbaugh, 1975); that it is the work of an alien visitor to earth (Cummings, 2016); that it is an elaborate hoax (Schinner, 2007; Rugg & Taylor, 2016); and that an antiquarian wrote the manuscript in

gibberish as some kind of fiendish practical joke (Barlow, 2010). Curiously, not one theory suggests a female hand.

There have also been innumerable scientific analyses conducted, based on the frequency and patterning of the symbols, words and so on, which have led to various conclusions, but none has succeeded in finding the solution (Guy, 1991; Guy, 1997; Landini, 2001; Rugg, 2004; Williams, 2010; Garel, 2011; Bauer, 2012; Amancio et al, 2013; Montemurro & Zanette, 2013). Curiously, there is also a transcribed version of the manuscript that uses incorrect identification of the symbols (Reeds, 2010). There have been conferences dedicated to the manuscript (Schmeh, 2013; Reddy & Knight, 2011). Various books have been written about the manuscript in both non-fiction and fiction (Kennedy & Churchill, 2006; Joven, 2006). It is even rumoured that the CIA and FBI have attempted to solve the code, although it is unclear what their motivation might have been. The general consensus therefore seems to be that the code is unsolvable.

In fact the manuscript is written in a perfectly ordinary language and is simply a tome about homeopathic remedies and practises relating to the spiritual belief system of the High Mediaeval period in Mediterranean Europe. It was written with particular emphasis on childbearing and the associated complications, which is why the majority of figurative illustrations are of women, remedies and charts. So, perhaps most surprisingly, the manuscript is not written in code at all, but simply the contemporaneous alphabet and language of its time and place. Remarkably, this fact seems to have been hiding in plain sight all along.

MS 408 writing system explained.

The correct approach to solving the code was to dismiss any notions of covert complexity and apply a pragmatic logic to how the writing system might work: i.e. to imagine using the writing system one's self and thereby identify the requirements for effective communication.

The limited number of symbols and their repeated use throughout the manuscript immediately suggested a phonetic writing system for constructing words from sound components, just as one does with English and other phonetic alphabet-based languages.

However, the lack of punctuation marks in the manuscript also suggested that the symbols take different forms, so that punctuation is indicated in a unique way. Thus, it would be necessary to identify all of the symbols and then separate them into phonetic types or forms. This presumption was correct as it was revealed that the different phonemes do indeed come in various forms, ranging from just one in some cases and up to four in others.

For example, there are four forms of the phoneme or letter *a*: one form is used mid-word (the *trapped a*) and a second form used for the beginning or end of words, and as a single letter word (the *free a*). Thus, one can apprehend intention of punctuation in the text: i.e. where words begin

and end. There is a third form of *a* in combination with *e* to form the *diphthong æ*, and a fourth form in combination with *s* to create the *diphthong sa* and in combination with *t* to create the *diphthong ta*.

There are also four forms of the phoneme or letter *s*: the *standing s* (prefix and mid-word), two versions of the *sitting s* (suffixes), and one form in combination with *a* to create the diphthong *sa*. Thus, one cannot begin to translate the manuscript without this knowledge. It should be noted though, that these 'rules' of punctuation are not rigidly adhered to in the manuscript. There are instances where the wrong forms are used because it doesn't affect ability to read and understand the text – although it may confuse the translator.

Conversely, the symbols for *e* and *i* are essentially the same, seemingly because there was little differentiation in the spoken language, so this oral uncertainty was transferred onto the written page. Therefore *e* and *i* can be thought of as interchangeable to some extent, which was a vestige of Classical Latin (Allen, 2003). There is also an absence of double consonants in the manuscript as well as the concept of uppercase and lowercase letters, which are clues to the language.

The identification of the phonemes and their various forms therefore made it apparent that some 'words' (standalone textual units) were in fact phrases containing two or more words, whilst others were indeed single words. The grammar of the manuscript was therefore revealed to comprise combinations of standalone words and conjoined phrases of words.

To complicate matters slightly, many stand-alone words require interpretation as phrasing anyway, due to the simplicity of the diction used and their stage in linguistic evolution: i.e. a single word might work as a sentence or part of a sentence in abbreviation by changing its tense. Some archaic phrases have also become portmanteau words in modern languages.

The phoneme or letter *t* (an abbreviation for *terminus*) is used as a full-stop [UK] or period [US]. This was common practice in Classical Latin and evidently remained popular, until the *t* was diminished to the single dot we use today. Where the terminus is absent it either means that one line flows into the next below, or that the intended sentence ends with the end of the line.

Language and Alphabet.

The MS 408 alphabet is proto-Italic and the language is a late dialect of Vulgar or Koinê Latin, which marks the transitional point between Classical Latin and the Romance languages: i.e. it may alternatively be described as Late Latin or proto-Romance. As such, the manuscript will inevitably have dual value in increasing scholarly understanding of the evolution of Italic script, punctuation, grammar and the evolution of the modern southern European languages, as there is little surviving material in these respects: especially in combination. Actually, almost all 'knowledge' of both proto-Italic symbols and proto-Romance language is derived from inference

by comparing prior and later examples to arrive at presumed transitional phases. Thus, MS 408 will open the door to both aspects of study. Ultimately it will provide a dictionary of proto-Romance words and definitions, in addition to the proto-Italic alphabet, punctuation and rules of grammar. Thus, two linguistic missing links have been discovered simultaneously.

Provided the handwriting in the manuscript is legible, and in a reasonable state of preservation, it is consistently possible to decipher, and so read, all parts of the manuscript. A selection of randomly chosen examples is given later in this paper as a demonstration that theory consistently and uniformly fits hypothesis.

Method.

Vulgar Latin was reasoned to be the most likely language used for the MS 408 manuscript simply because it was the language of informal high society in southern Europe in the High Mediaeval. Members of court, nobility and the clergy comprised various nationalities, and Vulgar Latin had evolved as the common language, as a diluted, corrupted and simplified version of the Classical Latin that had been a legacy of the Roman Empire across the continent. This was largely due to oral distortion and slang use of Latin, so that the few who were able to write simply committed their contemporaneous spoken version of Vulgar Latin to the page.

Actually, there really is no other contender language that would have been used in written form. The lack of double consonants was also a big giveaway, as they were abandoned in Vulgar Latin and reintroduced following the Mediaeval period. As well as being a form of instruction on pronunciation, the doubling of consonants also increased the number of potential words available to the language. Uppercase and lowercase letters were also reintroduced as part of this 'Linguistic Renaissance'.

The naïve use of the language also provided some indication as to the meaning of certain phonetic symbols and words, which provided a point of entry and expansion: a crib, in cryptological terminology. For example, the same noun or verb is sometimes simply repeated to provide a count, rather than writing a determining numeral. This seems to have been because the MS 408 alphabet and grammar were too simplified to accommodate certain linguistic components, so the author was forced to improvise. Or, perhaps the author had very limited Vulgar Latin vocabulary, as a linguistic foreigner.

Thus it was possible to use a process of reciprocal analysis and elimination to identify the meaning of the symbols and words in unison. Without the two counterpoints of reference it would not have been possible to perform the mental calculations required to decipher the code presented by the symbols and their patterns of use. One might think of it as a kind of cognitive triangulation, so that interplay between the two presumed factors eventually provided the

coordinates of the third factor by repeated adjustment. It also affirmed that the two counterpoints were correct in themselves, so that a mutual dynamic was in operation.

There is also something to be said for precise observation, as the different symbols are often quite similar to one another in their design, yet also quite varied in their execution on the page, so that perceived overlap occurs and confuses. However, once one distinguishes them and develops '*an eye*' for them, then identification becomes routine, provided the text is clearly readable. Where it is not clearly readable, there are often contextual and visual pointers to help in arriving at a likely translation. An important part of the process is actually copying the symbols onto paper calligraphically with an Italic pen, to get a feel for their linear execution: i.e. just how the author used the quill and ink to form the symbols. That way, one can understand the nuances of the text and improve one's ability at identifying the symbols correctly, even if they are unclear or incomplete. This was how the MS 408 font was created for use in this paper.

So, finding the solution to the manuscript required a systematic approach. Firstly, it was necessary to single out all of the symbols without knowing any of their meanings, so that the unknown 'alphabet' was clear: i.e. that all symbols were accounted for and other random marks were discounted. It was then a matter of finding the first crib, as a way in. From then on, it was possible to deploy the aforementioned technique to identify each of the symbols in sequence. The first few were relatively easy, but they became progressively and exponentially more challenging. However, eventually the meanings of all of the frequently used symbols were discovered by a combination of technique and a little inventiveness, educated guesswork and trial and error. Thus, the process of identification became rather complex and protracted, but the eventual solution was found to be elegantly simple, as is often the way with scientific endeavour.

There is a tautological saying; *if a solution seems obvious then it is obviously the solution*. Most complex problem solving is really a matter of waiting for the right mind to have a go, as it involves a singular mindset to find the correct strategy, without which no amount of time and effort will bring success. So there is an element of chance in raw ability, but it is also tempered by years of training in terms of scientific discipline, lateral thinking and cognitive tenacity. Most of all, there needs to be a willingness to risk experimentation with new paradigms, which is something academia tends to discourage, for fear of failure reflecting badly on institutions, but without which innovation cannot occur. We do well to remember that scientific 'failure' is merely another means of adding useful information to the process of enquiry and investigation.

There is a dearth of material regarding Vulgar Latin simply because very little evidence survives. However, it proved possible to identify many MS 408 words by their primogenitor forms in Classical Latin, as well as their subsequently evolved forms in the many Romance languages today. Other words were discovered in non-Romance languages, due to contemporaneous

injection of Vulgar Latin, resulting from politics, exploration, settlement, trade and conquest. Indeed, it might be argued that Vulgar Latin is still very much alive and well, but in hiding.

Aside from prior linguistic knowledge, this was achieved with the use of various Internet search engines, which were able to access and scan countless millions of online documents from around the world in an instant. Such documents included scholarly and popular books and papers dating from the present day to hundreds of years ago. There was also a wealth of linguistic information to be gleaned from other Internet resources, such as websites, blogs, conversation sites, social media and so on – all of which a search engine can locate given appropriate input. This was important, as conversational language is often quite different from formal language.

Various search techniques made this method an invaluable and efficient procedure. Internet translation tools were also used, along with online dictionaries, in order to amass a working lexicon of Vulgar Latin terms, initially to assist in identifying the alphabet and then to perform translations and transliterations of text samples. These electronic resources are of inestimable importance for this type of research, as without them it would be impracticable for anyone to cover sufficient ground in a practical timeframe.

The languages found to contain the Vulgar Latin terms were many and various. They were predominantly those of the Mediterranean environment: including Arabic, Catalan, Croatian, French, Galician, Greek, Hungarian, Italian, Occitan, Portuguese, Romanian, Slovenian and Spanish. Several languages from farther afield also came into play, including those of old Hispanic and Portuguese colonies and other parts of Europe. This indicates that the manuscript was written at a time when Italy (presumed place of origin) was a culturally cosmopolitan environment due to the changing political map in the High Mediaeval and the ambitions of empire. At that time much of Italy was part of the Crown of Aragón, which included the east coast of Iberia and the south coast of France, as well as Sicily, Corsica, Sardinia and the Balearics.

The only minor hindrance to transliteration was/is that many of the Vulgar Latin terms have various original and evolved possible meanings, so that a certain amount of interpretive license is required according to context within the text of the manuscript. One needs to consider that the language of the manuscript is equidistant in development between its Roman Latin origins and its modern Romance manifestations. In addition, the use of words within the MS 408 text itself is often ambiguous, due to the relatively limited vocabulary available to its author or authors, so the same words can sometimes be used with different specific meaning.

The few published works documenting known Vulgar Latin terms were of no practical use here, simply because their available vocabularies were so small and had little crossover with words in the manuscript. They document Vulgar Latin from earlier timeframes and different European locales, so their versions of Vulgar Latin are quite different. Evidently the manuscript version of

Vulgar Latin had evolved to become a new language in essence, which is why proto-Romance would seem to be a more appropriate description. See: Bibliography.

There is considerable difference in handwriting styles between pages in the manuscript, suggesting that several people authored, or at least dictated, the manuscript. Some styles are more considered and precisely written, while others are more spontaneous and imprecise. This also seems to have resulted in various spellings of the same words, as the different scribes will have used the phonetic palette to construct their own spellings by extemporization and personal preference. After all, there was no dictionary of Vulgar Latin available, so spelling was not standardized.

Some of the MS 408 text symbols are very similar to their modern counterparts. Others are quite different, although their prototype characteristics can often be detected with variation in the manuscript demonstrating their plasticity and the path to their subsequent adaptation. One can see that the rapid execution of some symbols caused them to morph in form over time.

It is likely too, that the phonetic sounds represented by the manuscript symbols are not exactly the same as those in modern use, just as various accents or modifiers are used above and below modern Italic letters (although seldom in English). The eventual introduction of punctuation marks and new grammatical rules would have determined the eventual letter forms, in the upper and lower case, that we see today.

Results.

There follows, a list of the frequent MS 408 text symbols in phonetic approximation with their modern Italic alphabet counterparts. Figs. 1-27 describe each of these symbols individually. They are used throughout the main text of the manuscript, so the vast majority of the text can now be freely translated into Vulgar Latin or proto-Romance, and thence transliterated into English or any other language.

Figs. 1-27. The identities of the frequent MS 408 symbols, using the corresponding modern equivalent phonemes or letters.


Fig. 1	MS 408 symbol: 
Symbol name: trapped a	
Corresponds with the modern letter <i>a</i> , but this form is typically used between other letters in the same word (- <i>a</i> -). If the <i>a</i> falls at the start or end of a word, or it is a single-letter word 'a', then the MS 408 <i>free a</i> is often used instead. It can be confused with the MS 408 <i>letter o</i> , but it is calligraphically begun and completed lower right, rather than above.	


Fig. 2	MS 408 symbol: 
Symbol name: free a	
Corresponds with the modern letter <i>a</i> , but this form is typically used at the start or end of a word (<i>a</i> -, - <i>a</i>), or as a single-letter word 'a'. It looks similar to the MS 408 <i>letter d</i> , but it is less angular and has a curved tail, instead of straight. It is also similar to the modern letter <i>g</i> , but that particular phoneme is absent, or silent, in the manuscript.	


Fig. 3	MS 408 symbol: 
Symbol name: component ais	
This symbol is used as the suffix component for many words, combining the <i>trapped a</i> , the <i>letter i</i> and the <i>sitting s</i> (- <i>ais</i>). Where the three-letter word is intended 'ais' the <i>free a</i> rule is broken, as the <i>trapped a</i> is used instead, due to the calligraphic habit. When the <i>trapped a</i> is absent the two-letter suffix '-is' results.	


Fig. 4	MS 408 symbol: 
Symbol name: component aus	
This symbol is used as the suffix component for many words, combining the <i>trapped a</i> , the <i>letter u</i> and the <i>sitting s</i> (- <i>aus</i>). Where the three-letter word is intended 'aus' the <i>free a</i> rule is broken, as the <i>trapped a</i> is used instead, due to the calligraphic habit. When the <i>trapped a</i> is absent the two-letter suffix '-us' results.	


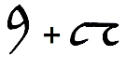
Fig. 5	MS 408 symbol:  9 + 
Symbol name: diphthong æ	
Corresponds with the modern letter pairing æ, but has also transformed into the singular a or e in some modern words. In a few instances æ persists in modern words. Many examples in the manuscript show the crest detached from the body of the symbol, so that it appears to be a long e with a mark or loop floating above.	


Fig. 6	MS 408 symbol: 
Symbol name: letter d	
Corresponds with the modern letter d. In the manuscript it is typically used to prefix words (d-), rather than being incorporated within words. It can resemble the MS 408 free a, but it comprises three straight lines, rather than having curvature. It is nearly always followed by the letter o (do-). It derives from the Greek delta (d) and the Phoenician daleth (d) symbols: Δ ◁	


Fig. 7	MS 408 symbol: 
Symbol name: short e	
Corresponds with the modern 'soft' letter e. Used frequently in the manuscript. Almost indistinguishable from the MS 408 letter i. The reason seems to be that the phonemes had become so similar in the spoken language that their representation and distinction in writing had often become rather vague. Pairing combinations e'e, ei, ie, ii are also difficult to separate for this reason.	


Fig. 8	MS 408 symbol: 
Symbol name: double short e	
Corresponds with doubling of the 'soft' modern e, with intonation (e'e). Conjoined at the bottom, whereas the long e (ee) is conjoined by a bar at the top. Often difficult to separate visually from pairing combination ei, ie, ii. Knowledge of vocabulary and context would have meant that the contemporaneous reader was able to understand intention in the author.	


Fig. 9	MS 408 symbol: 
Symbol name: long e	
Corresponds with the modern double <i>e</i> (<i>ee</i> , <i>e-e</i>) or the hard 'e' sound. Separated from <i>e'e</i> , <i>ei</i> , <i>ie</i> , <i>ii</i> , by the conjoining crossbar above. Used frequently in the manuscript, both as a separate symbol and as a framing component of various triphthongs and quadraphthongs (<i>e-e</i> , <i>e--e</i>). Can be confused with <i>diphthong</i> <i>æ</i> , when not clearly written or when deteriorated.	


Fig. 10	MS 408 symbols: 
Symbol names: letter i	
Corresponds with modern letter <i>i</i> . Sometimes doubled (<i>ii</i>) to extend the sound. Used frequently in the manuscript, although the MS 408 <i>letters e</i> and <i>i</i> , and the combinations <i>ii</i> , <i>ei</i> , <i>ie</i> , <i>e'e</i> , can result in some confusion. Vocabulary and context would have informed the reader as to the author's intention. The <i>letter i</i> symbol sometimes leans backwards instead of forwards.	


Fig. 11	MS 408 symbol: 
Symbol name: letter l	
Corresponds with modern letter <i>l</i> . Identifiable by having both legs reaching the ground, and by having only one loop, top right, while the <i>letter m</i> has two loops. It is only used singly, as double consonants were abandoned when Classical Latin evolved into Vulgar Latin, and only reintroduced following the Mediaeval, as an aid to pronunciation, along with punctuation. Shares model with <i>m</i> , <i>p</i> , <i>qu</i> .	

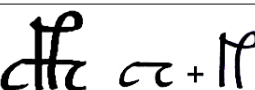
Fig. 12	MS 408 symbol: 
Symbol name: triphthong ele	
Corresponds with modern <i>e-l-e</i> . Used frequently in the manuscript, either as a standalone word, or as part of a phrase. Sometimes the phrase has since become a portmanteau word. Also, can mean both <i>e/e</i> and <i>elle</i> in modern language, since the reintroduction of double consonants following the Mediaeval.	


Fig. 13	MS 408 symbol: 
Symbol name: letter m	
Corresponds with the modern letter <i>m</i> . Identifiable by having both legs reaching the ground and by having two loops, while the <i>letter l</i> has only one loop. It is only used singly as double consonants were abandoned when Classical Latin evolved into Vulgar Latin, and only reintroduced following the Mediaeval as an aid to pronunciation, along with punctuation. Shares model with <i>l</i> , <i>p</i> , <i>qu</i> .	


Fig. 14	MS 408 symbol: 
Symbol name: triphthong eme	
Corresponds with the modern <i>e-m-e</i> . Used frequently in the manuscript, as a standalone word and part of a phrase. Sometimes the phrase has since become a portmanteau word. Can mean both <i>eme</i> and <i>emme</i> in modern language, due to the reintroduction of double consonants following the Mediaeval, as Vulgar Latin became proto-Romance.	


Fig. 15	MS 408 symbol: 
Symbol name: letter n	
Corresponds with the modern letter <i>n</i> . Used frequently, but only singly, as with other consonants. Can be confused with the MS 408 <i>letter r</i> , but has a closed base. It was modelled on the Arabic <i>nuun</i> symbol: ﺋ (<i>n</i>). In the modern Osmanya (Somali) and Kaddare conversion alphabets the letter <i>n</i> is modeled on the <i>nuun</i> in much the same linear way: ﺋ = ﺋ, ﺋ = n.	



Fig. 16	MS 408 symbol: 
Symbol name: letter o	
Corresponds with the modern letter <i>o</i> . Used frequently in the manuscript, often in combination with the other vowels <i>a</i> , <i>æ</i> , <i>e</i> , <i>i</i> , <i>u</i> , and occasionally as a double <i>o</i> (<i>oo</i>). Can be confused with the MS 408 <i>letter a</i> , but is calligraphically begun and completed at the top, rather than at the bottom right-hand side.	


Fig. 17

MS 408 symbol: 

Symbol name: **letter p**

Corresponds with the modern letter *p*. Used frequently in the manuscript and identified by crossed legs and two loops, top left and top right. Only used singly, as double consonants were abandoned when Classical Latin evolved into Vulgar Latin. Sometimes extended left or right (as shown) to indicate possession of other letters in a word. May be silent: *pt*-, *ps*-, *pn*-. Shares model with *l*, *m*, *qu*.


Fig. 18

MS 408 symbol: 

Symbol name: **triphthong epe**

Corresponds with modern *e-p-e*. Used frequently in the manuscript as a standalone word or as part of a phrase. Sometimes the phrase has since become a portmanteau word in modern language. Can mean both *epe* and *eppe*, as double consonants were reintroduced following the Mediaeval. Can be visually confused with *eque* without due care and attention.

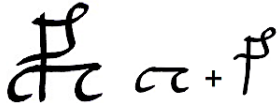
Fig. 19

MS 408 symbol: 

Symbol name: **diphthong qu**

Corresponds with the phoneme combining modern letters *q* and *u* (pronounced 'ku', 'kw' or 'ky'). Used frequently in the manuscript and identifiable by having crossed legs and only one loop, while *letter p* has two loops. Unusual in combining two modern letters as one, rather than being presented as a diphthong. Sometimes extended (as shown) to indicate possession. Shares model with *m*, *p*.

Fig. 20

MS 408 symbol: 

Symbol name: **triphthong eque**

Corresponds with the modern *e-qu-e*. Used fairly frequently in the manuscript, as a standalone word or as part of a phrase. Sometimes the phrase has since become a portmanteau word in modern language. Can be visually confused with *epe* and *e/e* without due care and attention. Described as a triphthong rather than a quadruphthong, as *qu* is a single symbol.



Fig. 21	MS 408 symbol: 
Symbol name: letter r	
Corresponds with modern letter <i>r</i> . Used frequently in the manuscript, but only singly, as double consonants had been abandoned. Can be confused with the MS 408 <i>letter n</i> , but has an open base, usually with unequal tails. Sometime the left tail is not clear. It derives from the Phoenician/Semitic <i>resh</i> (<i>r</i>) symbol: 	

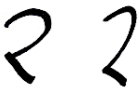

Fig. 22	MS 408 symbol: 
Symbol name: standing s	
Corresponds with the modern letter <i>s</i> and letter <i>z</i> in some instances with modern languages. The <i>standing s</i> is typically used as a prefix (<i>s-</i>) and mid-word (<i>-s-</i>) as distinct from the <i>sitting s</i> , which is typically used as a suffix (<i>-s</i>). Only used singly, due to the double consonant abandonment, Can be confused with the MS 408 <i>letter t</i> , but has angular heel. Derived from the Ancient Latin <i>s</i> : 	



Fig. 23	MS 408 symbol: 
Symbol name: sitting s	
Corresponds with the modern letter <i>s</i> . Has also become modern letter <i>z</i> in some instances with modern languages. The <i>sitting s</i> is typically used as a suffix (<i>-s</i>). The different forms are used depending on the calligraphic shape of the preceding letter. A variant of the <i>sitting s</i> can still be seen in the handwritten <i>s</i> as a suffix in modern languages. Derived from Ancient Latin <i>s</i> : 	

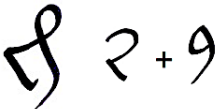
Fig. 24	MS 408 symbol: 
Symbol name: diphthong sa	
Corresponds with the modern letters <i>s-a</i> . Has also become <i>z-a</i> in some modern words. Usually used as a suffix (<i>-sa</i>) except when followed by <i>diphthong ta</i> (<i>-sata</i>). Combines the <i>letter s</i> with the <i>free a</i> form. Can be confused with <i>diphthong ta</i> , but has the angular heel of the <i>s</i> . It can also look like the <i>phoneme qu</i> , but with no downward leg.	



Fig. 25	MS 408 symbol: 
Symbol name: letter t	
Corresponds with the modern letter <i>t</i> . Used frequently in the manuscript, but only singly, due to the abandonment of double consonants in Vulgar Latin. Easily confused with the MS 408 <i>letter s</i> , but always has a curved foot, instead of the angular heel. When used in isolation it stands for <i>terminus</i> , to indicate the end of a sentence: i.e. a full-stop or period. Derives from the Greek <i>tau</i> (<i>t</i>): 	

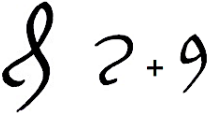

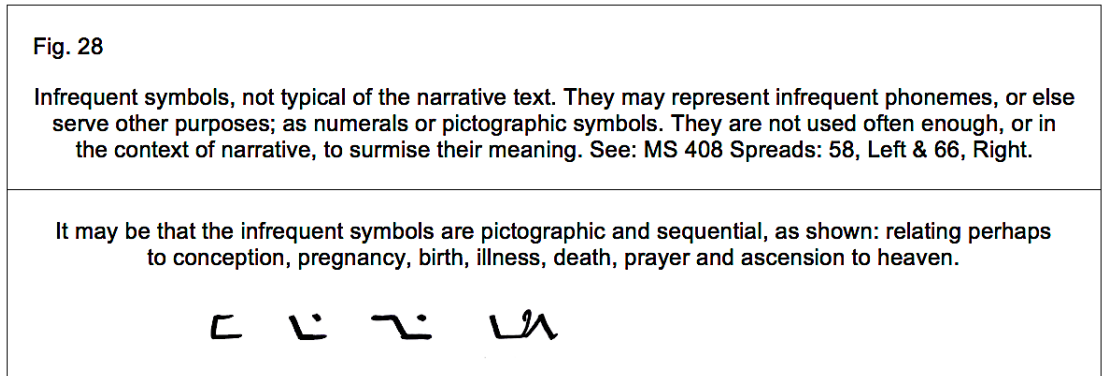
Fig. 26	MS 408 symbol: 
Symbol name: diphthong ta	
Corresponds with the modern letters <i>t-a</i> . Used as a suffix (- <i>ta</i>), it combines the <i>letter t</i> with the <i>free a</i> . Easily confused with <i>diphthong sa</i> , but always has the curved foot of the <i>t</i> , rather than the angular heel of the <i>s</i> . Can look like a <i>free a</i> with a loop above. Can also be confused with the <i>letter r</i> and the <i>letter n</i> , as all three are quite similar.	

Fig. 27	MS 408 symbol: 
Symbol name: letter u	
Corresponds with the modern letter <i>u</i> . Usually used in conjunction with other vowels: with <i>trapped a</i> (<i>au</i>), with <i>letter o</i> (<i>ou</i>), with <i>short e</i> (<i>eu</i>), with <i>letter i</i> (<i>iu</i>). Also used without other vowels: e.g. <i>um</i> , <i>un</i> , <i>ur</i> , <i>us</i> . Can sometimes be missed entirely, when it looks like a connective between other letters, or else be mistaken for a <i>letter i</i> .	

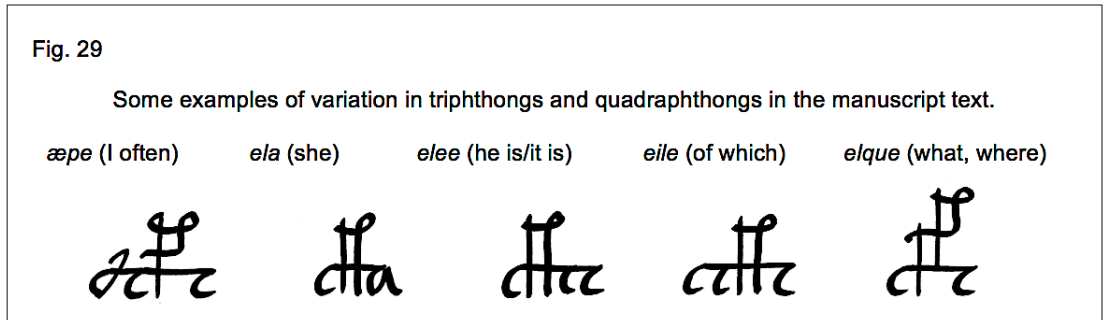
A few additional symbols, Fig. 28, are used too infrequently to be certain of their identity. They may have some kind of pictographic meaning. It is curious that they are not used in the narrative text, as it strongly suggests that they played no part in the narrative language of the manuscript.

Fig. 28. Symbols from the MS 408 text used too infrequently to be identified.

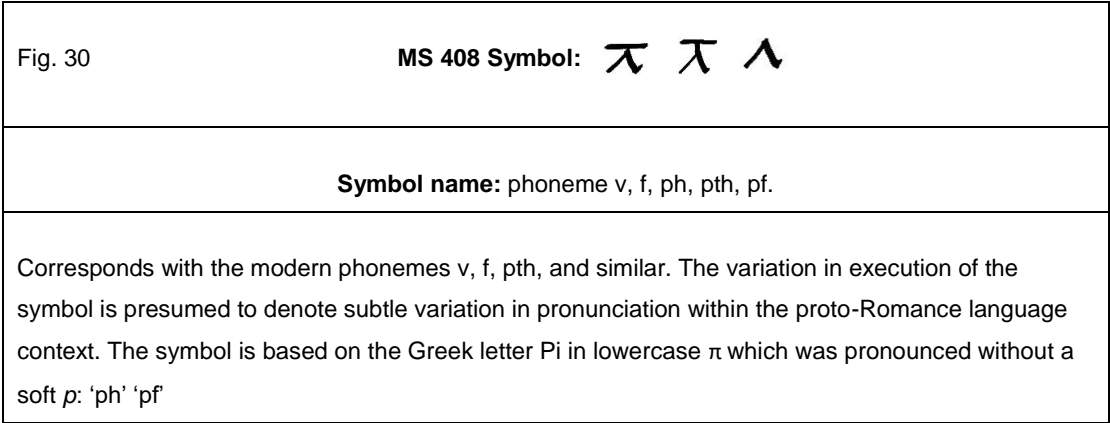




Some of the more unusual triphthongs and quadraphthongs are described in Fig. 29. The letters of certain words are grouped into one symbol when they begin and end with *e* (*e-e*) and occasionally *a* (*e-a*) or *æ* (*æ-e*).

Fig. 29 Some examples of infrequent triphthongs and quadraphthongs found in the MS 408 text.



Since writing the original version of this paper, it has been deduced that the symbol using an inverted V, usually with a bar above, is the proto-Italic for the phoneme expressed as *v*, *f*, *ph*, *pth*, in modern language. It is an indistinct or approximate phoneme, and the symbol is derived from the Greek letter Pi in lowercase π, which was pronounced something like *phi*: i.e. without the hard ‘p’. Thus, Fig. 30 has been added, below.



Six of the consonant symbols – *d, n, r, s, t, v/f* – demonstrate the Old Italic pedigree of the MS 408 alphabet, as they have ancient points of origin; namely the Arabic, Early Greek, Early Latin, Phoenician and Semitic alphabets. The symbol for *letter n* is of particular interest as it is derived from the Arabic *nuun* or *nūn* (ﻥ), explaining its unlikely and unfamiliar form to the eyes of those who speak European languages. Eventually, this form fell into disuse, in favour of *n* being treated as a companion phoneme to *m*, as it had been in the aforementioned other early alphabets. In these, the symbol for *n* was represented as a lesser form of the symbol for *m*, or one might say that the symbol for *m* was a double *n*, as it is in this very text: i.e. *n, m*. In point of fact, the familiar Italic *n* is itself derived from the Phoenician *nuun*:  The familiar Italic *m* is derived from a double version of this, known as *mem*: 

The reason why the *letter n* took the Arabic form in the MS 408 manuscript becomes apparent when we consider the symbols for the remaining four consonants: *l, m, p, qu* [*qu* here treated as a consonant]. In effect, the place of *letter n* had already been claimed by *letter l*, which here takes the lesser form of the symbol for *letter m* instead. It is counterintuitive until one understands the linguistic scheme of the manuscript.

In the manuscript, the symbols for *l, m, p* and *qu* are all based on the same linear calligraphic model, because the Vulgar Latin or proto-Italic language happened to include words whereby it was convenient and useful to frame those symbols with vowels – usually the *long e* (*e-e*): thus we have the standalone/component words *ele* (*elle*), *eme* (*emme*), *epe* (*eppe*) and *eque*, which are variously described as triphthongs and quadraphthongs.

Furthermore, this shared linear calligraphic model for *l, m, p* and *qu* is designed to prevent the crossbar of the *long e* from obscuring the informative parts of the four symbols, as they are all suitably elevated by their legs or leg. Note though, that where other framing vowels come into play, the crossbar is still used to tie the symbols together even though the *long e* is not involved: i.e. it became useful for punctuation.

Although some Romance languages now contain *ene* and *enne* phrasing, there is no Latin root for those terms, which is why *letter l* was symbolically partnered with *m, p*, and *qu*, instead of *letter n* in the manuscript. It was a matter of logic borne by linguistic convenience in projecting spoken Vulgar Latin onto the written page. As the Italian peninsula is proximate with North Africa it meant that the Arabic symbol for *n* would have been familiar at that time anyway, so its adoption also made practical sense for a working alphabet.

In addition, the word *nuun* appears in the Hebrew Bible, where it denotes a descendent of one of the Tribes of Israel, in the House of Joseph. So, it may have been a deliberate choice by early Christians to use the Arabic *nuun* in their alphabet for that reason: i.e. it had symbolic holiness.

The word *nuun* happens also to mean a fish or whale in Hebrew and proto-Semitic, which is why early Christians used the secret symbol of a fish, the *ixthus*, instead of the holy cross.

Note: The Arabic numerals 1-5 written on Spread 50. Left, are not part of the original text. They appear to have been added at a later date, in the incorrect presumption that the column of symbols denotes numbers. It should also be noted that the fragment of text at the top of the final page, (reverse of Spread 176. Right.) demonstrates that some of the text symbols had evolved by the time this paragraph was written, while other symbols remain unaltered.

MS 408 alphabet.

The frequent phonemes/letters of the MS 408 alphabet are therefore as follows: *a, æ, d, e, i, l, m, n, o, p, v/f/ph, qu, r, s, t, u*. This amounts to six vowels and 10 consonants: sixteen letters in total. As there are relatively few frequent letters, as compared with 26 in the modern English alphabet for example, this had increased ambiguity in the use of words, for want of alternatives, and introduced idiosyncratic modes of phrasing. This linguistic *stripping down* is beguiling, especially as various letters have two or more symbols, whilst the symbols of others are confusingly similar. Thus, there are just 16 frequent letters, but many more symbols and combination variants. It is the juxtaposing of these factors that has made the manuscript codex difficult to decipher.

Moreover, the absence or silent use of other phonemes, has evidently affected the language used in the manuscript, by limiting the vocabulary. This may have been common to the community at large or a peculiarity of the environment in which the manuscript was created. Indeed, it may even have been peculiar to the author, or authors, if Vulgar Latin was not their first language. The phonemes either absent or silent in modern terms, include: *b/f, c/k, ch/sh, g/gh, h/j/y, w, x/z*. Many Latin words had been excluded from the MS 408 vocabulary due to this eventuality.

It is worth noting also that some phonemes had been dropped in the Vulgar Latin generally. For example, the phoneme *h* became silent vocally at the start of words, so that the succeeding vowel was pronounced instead and therefore written that way too. Similarly, some consonant phonemes represent vocal junctions, or *intervocalics*, between other phonemes and therefore were omitted in written words, such as *j* and *y*. It may also have been that certain consonants were lost by absorption into others due to phonetic similarity in speech, such as *k* into *qu*, and *b/f* into *p*, and *c* into *s*. Some assimilated modern Romance phonemes are *p, v, b*, and *t, d, g*, so that different Romance languages use slightly different spellings and pronunciations for words of the same meaning and root.

One of the noticeable characteristics of the MS 408 written style, when translated into Vulgar Latin, is an apparent use of rhyming words to poetic effect. It seems that this was probably more accidental than intentional, simply because so many words have similar endings due to the

linguistic suffix forms in the Vulgar Latin. In addition, the repetition of words and the limited vocabulary seem to have contributed to the apparent phenomenon.

Demonstration of decryption method.

There follow, some examples of translation from the MS 408 phonetic proto-Italic text into Vulgar Latin using modern Italic text, then followed by transliteration into modern English. The transliterations are based on best interpretation of the Vulgar Latin, so one might say that they convert the gist, or essence, of what is being communicated into modern prose style, rather than following verbatim. Another transliterator would inevitably arrive at slightly different interpretations of the Vulgar Latin and use different turns of phrase in their conversion to modern language.

The linguistic ambiguity seen in the manuscript was probably not a problem at the time, as the brain would have automatically surmised intention due to context. A good example is the word *naus*, which survives to mean a Mediaeval sailing vessel used for transporting provisions, or a warehouse for storing provisions [Catalan, Portuguese, English, Greek]. In the MS 408 manuscript, the word *naus* is used to describe provisions in general: food provisions, food storage, to feed, to nurture, seed-pods, berries, nutrition and nourishment of the body and mind, harvest, growth and larder. *Naus* may also mean a servant who prepares food. It is also the root of 'nausea' (sea sickness), of course, so may refer to general feelings of morning sickness and pregnancy cravings related to the stomach and foodstuffs within the MS 408 text.

In addition, the non-MS 408 variants *nous* and *nauc* bring further meanings: *feeding trough/manger* in Provençal and Occitan, *coffin* in Old French, *nut* and *nutshell* in Catalan, Albanian and French, *corpse* in Gothic. In Turkish Arabic the word *naaş* is used for *corpse* and *coffin*. Again, they allude to the notion of a vessel, within which a foodstuff, a fluid or something else is contained. As *naus*, *nous* and *nauc* are spoken homophones, then clearly this can explain why the author uses *naus* with such ambiguity within the text.

In various European countries variants of *nauc* also mean learning, knowledge, science, the self: i.e. to contain information in the mind. Similarly, in English the word *nous* means to possess/contain common sense or mental ability. In modern Portuguese and Catalan the word *naus* has evolved into *noz*, which means nut and walnut respectively. Similarly, in French nuts has become *noix* and walnut *noyer*. In Italian walnut is *noce*, Catalan *nou* and Romanian *nuc*, with nut as *nuca*.

Intriguingly, the link between walnuts and the mind may have been established by the similarity between the kernel of the walnut and the brain in appearance. Similarly, the *naus* ship seems likely to have given its name to nuts, due to the similarity between the vessel's hull and nutshells. Thus, the MS 408 *naus*, can be seen as a transitional root to various modern terms that seem to

be unrelated, but actually have logical connections: food, storage, knowledge, nuts, containment, vessels and so on. In essence, the meme *naus*, which originated as the Greek term for a ship or sailor, has speciated over cultural time and space.

Ultimately, it seems that the MS 408 word *naus* is more accurately the progenitor to *nous*, the Provençal and Occitan word for: feed, food, foster, nurture, provide sustenance, etc. Indeed, the Latin roots *noris*, *nutrire*, *nutrix*, mean: *nourish*, *suckle*, *nurse*. Similarly, the Old French *norir/noriss* mean *nourish*, *care for*, while *nourrice* means child-minder/nanny in modern French. As *naus* is used so often in relation to the plants and procedures in the manuscript, then this makes most sense. So, it is probable that some cross-over of meaning occurred between the nautical root and the nutritional root, due to the oral distortions of Vulgar Latin and knowledge of linguistic origin being absent.

Another example is the word *dolina*, which survives today to mean *valley* or *sinkhole* [Greek, Polish, Croatian, Italian]. In the MS 408 manuscript the word *dolina* is used to mean any valley-like depression that holds fluid, such as a bathing pool or a bath, as well as the recess of a bowl, a pot or storage jar. In fact, it survives as *doline* (a *basin* or *hollow*) in English and French geological language.

Note that the word *dolena* (sorrowful woman) is visually identical to *dolina* due to the lack of distinction between 'i' and 'e' in the MS 408 phonetic alphabet – perhaps because *letter i* and *short e* were treated as virtually identical phonemes. The similar word *dolona*, means 'the cause' of something.

The word *domina*, which is easily confused with *dolina* and *dolena* in the manuscript, is used to mean *lady* or *mistress* in the manuscript, which is the original Latin meaning: i.e. the dominant woman in a royal household or nunnery. Today it survives to mean *dominate* or *master* something in Italian, Catalan, Portuguese, Basque and Romanian.

Marker words.

During the process of decoding the MS 408 symbols, some words stood out as markers of definitive proof that the prescribed meanings were correct. For example, on Spread 70. Right (using the numbering added to the manuscript) There is a circle of illustrations of human figures. One figure, inverted bottom right, has a beard and is the only male figure, with the words: *opat asa* [Croatian, Slovenian, Polish] which translates as *this is abbot*: i.e. the abbot of the monastery where the manuscript was written.

On Spread 2. Left. Showing the deadly nightshade plant (*Atropa belladonna*) the first word is *leta*, which is Latin for *kills* or *slays*: i.e. to release life. The first phrase *leta eo naus*, therefore translates into 'deadly as food'. Note that the illustration of the plant is not botanically accurate,

as it shows a single berry on the belladonna vine. This is typical of the manuscript as a whole, as the author was more concerned with the medicinal parts of the plants than their exact anatomy.

On Spread 79. Left. The first word is *palina* [Italian], which translates as a *depth marking stick* or *ranging rod*. (The plural is *palinae*). The letter *p* in this instance is elongated and marked with depth calibrations by way of illustrating the word pictographically: i.e. it is a primitive illumination. In point of fact, a female figure can even be seen using a *palina* to measure the bathing depth on Spread 75. Right: fourth figure down.

On Spread 84. Left. The second word is *naror* [Romanian] which translates as *cadaver/corpse/deceased/dead*, indicating a therapy for patients stricken with grief following stillbirths and miscarriages.

On Spread 77. Right. The header words read: *nas e nas orlet omina omosl omor nena tosar nomina*. This translates word-for-word as: *Enters and, churning, divine, dissatisfied, terminates, baby, removed, re-appointed*. This page evidently alludes to using herbal drugs for forcing miscarriage of still babies or unwanted babies, thus to either save the mother's life or to save reputation. The source languages are Portuguese, Spanish, Italian, Latin, Greek, Romanian, Catalan and Galician.

On Spread 99. Right. There are three cooking vessels. The top illustration has the word *olasarota* (*olas a rota*) [Portuguese, Spanish], which translates as *pots for roasting*: i.e. cooking pots. The middle illustration has the word *aposar* [Romanian], which translates as *softened*, and the bottom illustration has the word *mæorna* [Portuguese, Spanish], which translates as *earthenware/clay*. Thus, the author is instructing the reader to cook the vegetables by boiling or steaming them in clay pots until tender. These cooking pots were stacked clay tagines, under which small fires were lit – a North African influence. There are many illustrations of tagines in the manuscript, often mistaken for towers or minarets due to their decorative designs.

On Spread 88. Left. The heading words, between the vegetables, read: *omos eima osar osarn ornas omola omarn*, which translates word-for-word, as: *however, I am, to dare, share, vegetables, not the same, together*. A modern English transliteration might be: *However, I try mixing different vegetables for the same recipe*. Thus, one can see how the MS 408 Vulgar Latin is used to construct sentences. This particular example uses Vulgar Latin words found in Greek, Spanish, Estonian, Latin, Italian and Armenian.

On Spread 78. Right. The words accompanying the illustration read: *olenr nro, olena, nasaro eque a, nei nara*, which translates as: *valuable perfume, divine light (olive oil), in the ring equally, new person*: i.e. the addition of scent and olive oil to the bath rejuvenates the bather. The *ring* would appear, in the image, to be some kind of mixing funnel in which the oil and perfume were

combined and then blended with hot water as it flowed into the bath. Note: olive oil is regarded as holy nourishment and conduit throughout the manuscript.

On Spread 83. Left. The first three lines read: *molor orqueina doleina dolinar æor domar om nar nar or æina, dolina ræina domor nor æina æina na nas omina eimina rolasa, nais oe eina domina domeina etna domar doma dolar dolina ro*. The Vulgar Latin *molor* in this instance is the Classical Latin *mollor* (*soften/calm/pacify*) as the Classical Latin *molor* (*grind/mill/wear*) would be inappropriate. This example explains why double consonants were reintroduced after the period of the MS 408 manuscript, to refine the use of the written language in the post-Mediaeval.

The word *ro* is an abbreviation for *rogo* (to ask/request: Latin); *eimina* is to *eliminate* in Spanish and Portuguese; *om* is *hom* (*homine*) meaning *man* in Latin; *nar nar* means *foolish/crazy/up-tight* in Romansch; *nor* means *daughter-in-law* in Aromanian; *ræina* (*reina*) means *queen* in the Romance languages; *omina* means *omen* in Latin; *domina* means *lady* in Latin; *domena* means *domain/room* in Latin; *dolina/dolinar* means *bath/bathe* in Romance languages; *domar* means to *tame/control* in Catalan and Portuguese; *doleina* means *therapeutic* in Catalan; *æina* means *wife* in Catalan; *etna* (*ætna*) means to *heat/burn* in Latin/Greek; *nais* means to *begin/commence/create* in French. Thus, the transliteration is constructed by inserting connectives, thereby turning the Vulgar Latin into logical modern sentences.

So, a reasonable transliteration would be: *Calming with therapeutic bathing is always certain to tame the tense man and wife. A queen's bath always relaxes the daughter-in-law and wife to eliminate the omen, for it to happen. Begin now the method for the lady's domain, and heat the room to make the bathing smooth, please!* So, the passage appears to be advice for the mother (queen) of a prince to impart to her daughter-in-law as guidance for seducing her son and becoming pregnant.

It is interesting to note that the word *etna* (*ætna*), given to the active volcano on the island of Sicily, Mount Etna, has presumed etymological origin from Latin and Greek, via the Phoenician *athana*, which means *furnace*. Thus, the MS 408 text serves as confirmation of this association with *heat/fire* in Vulgar Latin. It seems also that there is a connection with the Latin *aena* (*æna*), used elsewhere in the manuscript, which means *to heat/boil water in a copper cauldron*: i.e. as a boiler.

On Spread 53. Right, showing the oblong-leaved sundew plant (*Drosera intermedia*), the first word is *lanasa*. The obvious translation relates to *lana/lanosa*, which mean *wool/woolly* in Latin and Italian. However, *lanas* (singular *lana*) is a slang term for *money*, or *monies*, in Spanish. It was derived from the erstwhile value of wool as capital, much like the English slang terms for money *dough* and *bread*. Thus, the first line, which reads: *lanasa e o eme ona oma*, transliterates as: *cash is used to purchase this in quantity*.

On spread 67. Right-Right (foldout). There is a circular chart depicting twelve female faces. The author is describing twelve cliché types of women found in court, in relation to sexual congress with men of the court. Starting from top-right we have: 1. *amonar* (love drunkard), 2. *olais as mor [amor] naus* (smells love as food), 3. *opeorna omas na* (helper of moods), 4. *oquas oe ornas eon arta* (to what they give brief time), 5. *alo aus ameo nra* (grow below, lover we see), 6. *o eme at* (one who sells it), 7. *amo las* (loves it), 8. *aquais ameros* (those for loving), 9. *alonas* (with halo – angels/virgins), 10. *nor e tona domo eas* (desires to be tamed), 11. *neonas* (new ones – girls/neophytes), 12. *olar [ollar] atar nar* (attacher of looks). Evidently, the manuscript is quite light-hearted and wryly comical in its tone. Note that; the word *nra* (we see) is Arabic: pronounced *ne'ra*. Not to be confused with the Latin abbreviation *nra* [*nostra*] which means *our*. The other Vulgar Latin words are to be found among the southern European Romance languages and Classical Latin/Greek.

On Spread 80. Right. There are labels above a series of illustrations at the head of the page that seem to describe the stages of a procedure. Thus we have: 1. *dosara*: take doses. 2. *orena*: say prayers. 3. *olara*: one who eats. 4. *oloro*: one who stinks. 5. *olosa*: fit and able. 6. *opos*: bathe in plant juice/sap (vegetable/fruit). 7. *orla*: wrap in towel. 8. *oma ræina [reina]*: become mother queen. 9. *alas*: touched by angels (winged). 10. *olais*: and scented. Thus, the patient first takes medication and prays until unclean and pungent physically, but cleansed spiritually. The patient then bathes in plant juices and emerges refreshed, angelic and pleasantly aromatic.

Looking at the opposite page (80. Left) this spread seems to be about getting in shape during gestation. The first line reads: *por næina orlasa domoror omarna alinor os orosor*. This transliterates as: *A method for shaping and controlling mother-to-be to nourish the term*. This method of bathing in plant juices is now known as *opotherapy*, from *opos* (juice) and *terapeia* (treatment), although it now often uses animal fluids rather than plant juices.

The illustration at the bottom of Spread 82. Right, seem to relate to ideas pertaining to the types of children one might expect to produce (read clockwise). The words along the top of the lower illustration (left-right) relate to prenatal bathing and read: *olas*: fit and able; *nasor*: water spout; *olar*: to nourish; *olarna*: to be nourished (fat); *nasasa*: weir; *olaisana*: scent maker.

The words along the bottom of the lower illustration (right-left) then describe potential children, thus: *oleios*: of olives; *araus*: of roses; *noror*: northern; *tolora*: sometimes; *orla la*: on the border; *tososr*: too much. The first three evidently relate to complexion: i.e. olive skinned, rosy faced, pale toned. The final three evidently relate to temperament of children with regard to effort required on the part of the mother: i.e. easy going, tolerable and very needy. One of the images of the mother can be seen holding an infants rattle, while the child ignores her. Another shows the

mother holding up her hand to remonstrate that she has had enough, while the child reaches out for attention.

As the court would have been a cosmopolitan place and royal marriages would have been politically motivated, then betrothals between royalty of southern and northern European race would have been commonplace. Therefore, producing children with different appearance would have been inevitable due to their mixed heritage. As to personality though, well as any parent will testify, that always varies regardless.

Note; that the images of the children are typical of artworks from the High Mediaeval. They are essentially drawn as miniature adults, including breasts, rather than having the proportions seen in real children. Artistic realism had been developed in professional artistry in Italy during the High Renaissance (c. 1490-1527), but lay or amateur artists still had this primitive or naïve style.

The series of illustrations on Spread 83. Left, (top-middle-bottom). Appear to depict a practice of infusing water with female 'essence' and scent for the purpose of nourishing those who are pregnant. The words along the top read: *omiena* (of mine), *omina* [*homina*] (lady), *naus oma* (mother nourishment), *ominar* (with good omen). The two middle words read: *olarea* (pot-like: fat woman), *orleina* (neatlined: skinny woman). Thus, the water is prepared with the essence of various types of woman. Note: the figure top-left may be a self-portrait of the author, or else a generic woman of her type.

Arriving at the scene below, to the left we have the patient tentatively stepping into the water. Above her it says *olais* (to stink) and in front of her *orlor* (water's edge). To the right it says *olorna* (scent in) and *olor* (*scented*). In the middle there are two semi-circular pipes. Above the first pipe it reads: *olo oma* (whole mother) and *olinos* (add oils). Between the pipes it reads: *ominor* (to predict). Below the second pipe it reads: *omeina* [*homeina*] (she as one).

At the bottom of Spread 83. Right. There is an illustration of two women standing in vessels and connected by a pipe. Beneath the pipe there are the words: *emosor* (issuer/provider) and *ortaus* (risen/sprung). The paragraph below these words reads: *omena dolena æinar nar e eor ror enar aus tor naus eina*. This translates as: *abandon, suffering, inform, agreeably, their, out, dew, unites, below, for, nourishing, tool*. A transliteration of this sentence might be: *Their fluids unite and work as an agreeable method for nursing below, by removing the suffering*.

The words corresponding with the two outflows below read: *tas ornar* (be adorned) and *nas orta* (in the rising). The second paragraph then reads: *torleia dolia sara or tor elar e eor domas or naus or nais eia rnaros tor s mais eme or*. This translates as: *turning, hurt, healing, from, turn, fortune, it goes, tame, from, nourishment, from, mothers, it is, things-fluid, for, holy, more, acquire, from*. A

transliteration might be: *The hurting is turned into healing as the nourishment from the mothers' fluids brings a change in fortune from the holiness acquired.*

An interpretation is that fluids from healthy mothers were believed to heal mothers who were suffering from complications or maybe just the usual condition of pregnancy. The illustration seems to indicate that a healthy mother (left) would wash or rinse her nether regions, so that the water could then be used to cleanse the ailing mother (right). A naïve logic, typical of Mediaeval thinking.

These marker words and phrases are vitally important, as they demonstrate the validity of the decryption method, even when some words are tricky to define or locate: i.e. we now know the spelling must be correct and that the word existed even though it may now have become obscure or altered. Therefore, it becomes a matter of detective work in figuring out what the meaning of an unknown word is likely to have been and then entering it into a working lexicon with a provisional definition. In most instances, repeated use of the same word enables the tightening of the definition, by comparing context each time it is revisited. In addition, research often unearths information that ultimately serves as confirmation of suspicion: i.e. the word is found hiding in a modern language.

Here are some more examples of excerpts and pages translated into Vulgar Latin and transliterated into English. The transliterations were achieved by using a lexicon of Vulgar Latin or proto-Romance words compiled from Classical Latin, from contemporary Romance languages and other modern languages. Many words have various possible interpretations and cognates as discussed, so this is largely a matter of educated reckoning according to context and other pointers. The technique is to pencil-in likely meanings, and then make adjustments as required. The first two examples show the excerpts in their original MS 408 font to demonstrate the conversion of MS 408 symbols to Italics.

Palaeography Examples.

Below are examples of the palaeographic technique used in translating the manuscript text into proto-Romance. In essence it becomes a combination of Latin and Romance words/phrases, as any Latin words take priority in order to avoid potential ambiguity in the Romance derivatives. That way, we know that the translation is faithful to a reasonable degree of accuracy. Transliteration then becomes a matter of interpreting the resulting sequences.

Spread 11, Left. Plant: *Campanula persicifolia*. Peach-leaved bellflower. Page text sequence. Palaeography.

Manuscript	Latin	Romance
line 1.		
paus (palus) (singular: pau)		stems, stalks – <i>Portuguese</i> .
naus	food, edible	

æio (æ i o)		to the or – <i>Italian</i> .
peiea (pei ea)		for the – <i>Italian</i> .
doma	dome (pregnant belly)	
naus	food	
eme os	acquire mouth (consume, eat)	
oma na	mother survive, flourish	
t	terminus (full-stop)	
ais	I say, I assert	
line 2.		
nais		birth – <i>French</i> .
naus	food	
ele a e		she to is – <i>Catalan, Portuguese, Italian</i> .
eme os	acquire mouth (consume, eat)	
eo us		the us – <i>Catalan</i> .
dom		of whom, of which – <i>Old French</i> .
eo naus	the food	
eme a	acquire to	
naus	food, feed	
line 3.		
næo (nio)		child, boy – <i>Portuguese, Catalan, Galician</i> .
a mia		to mine – <i>Portuguese</i>
leor		read, detect – <i>Portuguese</i> .
or la		and the – <i>Portuguese</i> .
eor na	I go, proceed survive	
(line 4: new paragraph)		
domea	householder	
mos	habit, way, custom	
æous (a os)		to the – <i>Portuguese</i> .
naus	food	
domeia	household	
æ eme ia	to acquire it	
alos (aloser)		favoured, praised – <i>Old French</i> .
nais	young, new, fresh, tender	
line 5.		
æo a (ao a)		to the – <i>Portuguese</i> .
le'ea (leio)		read it – <i>Galician</i> .
naus	food	
domea	householder	
domos	Home	
eor	I go, proceed	
naus	food	
dolea la	dole it out, distribute, supply	
line 6.		
æous (a os)		to the – <i>Portuguese</i> .
eos	them	
æ eme a	to acquire it	
doma domous	dome dweller (baby in belly)	
dolor	ache, pain, sorrow	
eos	them	
aus	below (nether regions)	
line 7.		
dolor	ache, pain, sorrow	
ea la		she at – <i>Romanian</i> .
eor	I go, proceed	
ei la		they it – <i>Romanian</i> .
naus	food	
nais	young, new, fresh	
e ele as		and she – <i>Portuguese</i> .

A reasonable transliteration might be:

The edible stems are eaten at home by the mother for her health. I assert that they are birth food, so that I can tell that the child will survive. The housekeeper makes a habit of acquiring them fresh, when they are their best. So, I go to collect them and supply them to the home for aches and pains in the belly and down below.

Spread 2B. Upper Paragraph. Plant: Knapweed. *Centaureia*.

Manuscript	Latin	Romance
line 1.		
lanais (l'anais)		the yearly – Portuguese.
apeor (apear)		to shed – Portuguese
naus	food, nutrition	
omear (om ear)	person proceed	
apeaus (apeás)		collect, take down – Spanish
ele orta	it risen	
line 2.		
nos		us, we – Catalan.
eosa (eos)	that, the	
elas		they – Portuguese, Occitan, Galician.
T	terminus	
æos (a os)		to the – Portuguese
emea (eme a)	acquire, procure, get it	
emo	purchase, buy	
line 3		
domaus (domás)		to tame, control – Spanish
eme ea a	get her	
eos	that	
ea	she	
ana		equal measure – Italian
eaus		waters – French
line 4.		
ae		method – Old French
auna (aunar)		to mix, merge – Spanish
e mon		it is my – Catalan
na	thrive, survive	
epe a		of stomach – Italian
nar		to upset, to madden – Romansch
T	terminus	
e o maus n (nous)	of the	our evils, illnesses – French
omo (homo)	man, person	
eos	that	
ar		would – Romanian
æo (io)	exclaim	
naus	food, nutrition	
eor	i proceed	
nas	thrives, survives	
ameaus (amelus)	foetus	
nas	thrives, survives	
line 5.		
T	terminus	
aus	below, beneath	
n ais n (nous ais nous)	our say our	
n lor	our	them – Romanian
tos		cough, burp – Catalan, Occitan
amorna (amor na)	thrive	love – Catalan
neor	entwine	
nea	new	
epe a		of stomach – Italian.
line 6.		
æos (a os)		to the – Portuguese.
ele a	it is	
nausa (nausea)	sickness	
eor nas	i proceed thrive	

Most of the words have only one definition, either in the original Latin or in a derived Romance language, and the sequences appear to have logic in their meaning. Furthermore, no words were

produced that had no definition and thus made no sense, which is a strong indicator that the symbol key is also correct.

In this particular paragraph, the author of the manuscript is evidently saying that the plant in question produces food (flower heads) on a yearly basis, which are collected when they are risen. They go on to say that the remedy is given in equal measure with water as a treatment for upset stomach, and that sickness in the belly is cured, enabling the unborn baby to safely settle and develop as normal.

The plant appears to be a species of knapweed (*Centaurea* spp.). Some Mediterranean species have whitish flowers, rather than the familiar purple. The flowers were used for 'fluxes of the belly' in Mediaeval times. They were either pulped and mixed with water, or made into a decoction – a reduced liquor. The term '*knap*' is a corruption of '*knop*', which meant an ornamental knob in Mediaeval English., due to the appearance of the flower head. As this herbal information also concurs with the translated manuscript text, then it would seem reasonable to conclude that the solution works, both in respect of the proposed language of the manuscript and the proposed symbols.

Excerpts from MS 408 manuscript, translated and transliterated.

Example 1.

Spread 10. Left. Field Pansy (*Viola arvensis*) (Vulgar Latin: *dopeapeo*: The Little Peas). Paragraph One.

ƆoƆtoƆ oƆoƆoδg oƆg ƆoƆ δaυυ 4oƆcaƆco 4oƆoƆ ƆoƆ ƆcoƆ δaυυ
 δcoƆ 4oaaυ cƆllaυυ ƆcoƆ ccoƆ ccoƆ ƆcoƆ δg oƆg 4oƆllaυυ δg
 gƆcƆg ccoƆ g Ɔllaυυ δaυυ ƆcƆg oƆllaυυ oƆg occcƆ δaυυ
 gƆcƆg Ɔ cƆ g Ɔllaυυ ƆcoƆ oƆg ƆoƆδg

Vulgar Latin.

quoeos oposona opa æos naus dopeapeo doquor æor equeor naus
neos doaus elaus emeos eor eos epeor na oma dolaus na
alea eos a laus naus emea omaus ola oeeit naus
amea m e a laus emeos omor oma morna

Transliteration.

When there are the opposite of good years for the growth of the little peas, the young pods, which have an equal reputation, are praised and eaten when harvested by cutting off at the joint. They pray for the pods to grow and lo, they witness pods. If the praise is insufficient then the final harvest collected threatens to be disappointing.

Example 2.

Spread 100. Right. Cooking instructions. Text placed between plant illustrations as header.

ɾoɾ aɾo ɾoɾ ɾoɾoɾ ɾɾa oɾɾaɾ ɾoɾaɾɾ ɾaɾ ɾaɾ ɾaɾ ɾaɾ ɾaɾ
 oɾ aɾo ɾoɾaɾ
 ɾoɾaɾ ɾoɾaɾ ɾoɾaɾ ɾaɾo ɾɾ

Vulgar Latin.

eot aso æor toeos equea omias eoquasa tas eas naus na
 os aso toquasa
 eortais toima tosasa nalo ele

Transliteration.

For their big roast they need to be cooked equally, so place the food in the roaster in a pile and stir and mash the celebration inside.

Note: The phoneme ‘a’ at the beginning of ‘aso’ is not a *free a*, because it is clear in this instance that a separate word is being written – thus punctuation was used flexibly. The phoneme ‘a’ at the end of ‘equea’ is not a *free a* either, for the same reason.

Example 3.

Spread 85. Left. Antenatal bathing. Illustration annotations x 3.

Vulgar latin.

omna nas ena nas os asa
 tous olei ia tor olara

olas anaisor ae ele a næina

olena toreia nais orna
 nas ea a æle a oeina

Transliteration.

All of them as one, they enter the sanctuary.

Each has olive oil for the pregnant belly.

Much record of it exists for this method.

Holy light strikes the mothers and adorns

them by the organ being penetrated with oil.

Example 4.

Spread 79. Left. Sacred bathing. First 5 lines.

Vulgar Latin.

*palina orqueina dolina tpea eina sor nos oqueina dolina
oræina dolina s æena emena omina lina nar nar nor oma nar
dolina e ema doræina olina nor iit or eia domina nasa
or ea ræna rei elea or leina rei eleia r orlina lais or
dos orleia orlais or etia or eiela nas olar nar or eina*

Transliteration.

To remove any doubt, measure the depth of the women's bathing pool with a palina [measuring rod] for confidence that the method will work during the bathing. The sacred level of the bathing pool will summon the divine power of god's holy fire and light to approach. This will enable the mistress in the bathing pool to spiritually elevate and remove the thing that troubles her, as a daughter of god in the golden glow on the foreshore. Form a circle of chanting in unison now, so that the method enables her to envision the holy fire.

Note: Here we see the aforementioned word *palina* used in context. Clearly, the depth of the water was considered an important part of the procedure.

Example 5.

Spread 84. Left. Olive oil as grief therapy. First paragraph.

Vulgar Latin translation.

*pornala naror omena emais opeina domar æena e ep eina opeia
nor æena dolina æena dominar e i emeina dolina domar eia nas
domaus eemea nar orlina æena domar na dolaus nais æena omeia
nais aeiena omeio na norna domina doleina dolinas æio r na dor ora
dollar æena domais eina einor naus omaus æena doleina olaus*

*eina domeina omar æena tor er e et oleor æena dolar
doleia omeia dolaror eina na nor dollar orlæina doleina dollar
torlei na dolaus olaus ein oleia*

ororasa

olasea

English transliteration.

To begin to forget the deceased, this is induction to a method of constraint. Overwhelmed women bathe to acquire god's holy light when they are affected by a time of grief and injury following birth. The ill-fated lady in mourning uses these baths to soothe the pain and to pray. It is a method of taking control by nourishing the self through praise during mourning and by applying olive oil to the sorrowful woman, to calm and soothe. The torment and injury are reduced by praise and by anointing with oil.

Pray and pray again

Abundance

Example 6.

Spread 34. Left. *Helianthus annuus*/*Helianthus tuberosus* (sunflower/topinamber)

Note: This identification has been discredited since writing the original version of this paper, because the manuscript has been dated to the year 1444: i.e. before the Americas were discovered by Europe. The relevant paper is titled: *Linguistically Dating and Locating Manuscript MS408*: <http://ling.auf.net/lingbuzz/003808>.

A likely re-identification is one of the *Heracleum* species, as they produce large seed-heads and have edible rootstock. Although the drawing of the seed-heads is anatomically inaccurate, the palmate leaves are certainly appropriate. As the author was clearly not a talented draughtsman and may well have been drawing from memory, then the representation of each seed-head as a composite flower makes sense in terms of simplifying the image.

Vulgar Latin.

*masas naus anais emeia nort æela os aus es
lena nasa na oma omar nais ena amasa omasa easa
nas e ele a na nala ele na ola nasa
molas æna nar dolas æn omona eina amena nona nais
mena eona olaus e ele a nos asr eme a na ma na alas eil a na
a eio nas oraus olas ena ena orna olas ena
mæna æequena æ ele na orlina naus ola eior osais ena æna posas
nas as æeia leina olea olas olina ea naus na na nas aus olasa
tas os aus eos as ælais æor e ele a as aus olais nar na*

*reos os eia ro naus o os oleina olara
mas ar leia os asa*

Transliteration

An abundance of food yearly, to harvest from the top and the bottom. They give energy to uplift the mother and the baby as one. Knead the life-uplifting energy into the dough. Now bake the sacred bread and chop it into pieces as generous offerings for Nona [god of babies/birth]. Now take control of the passing time with praise. As the time to come approaches in the morning, cradling and prayer are used to adorn the contractions. Manna [heavenly bread] is unequalled as a holy food for the wellbeing of life below. Now place it in oil of holy light [olive oil] as food for the contractions and consume to the bottom with chanting and praise. The meal is goodness and anoints the belly, but you must also read your little one.

Example 7.

Spread 76. Left. Central illustration: Negotiating the price of olive oil.

Vulgar Latin.

*olæa tasar - nolar nasor - narna nar æn – narlas dolar – nra osa – oma rea – narna domin – slar
alina – orlea omora*

Transliteration

The money nose (negotiator), who speaks heatedly, appraises the price of olive oil. We disagree and the stern mother speaks accusingly to cut the price by controlling them with ease, because god's light we honour.

Note: The Arabic word *nra* may be seen again here, in the phrase *nra osa* (we see disagreement), although it could also be the abbreviation for *nostra*, to form 'our disagreement.' Both options work equally well.

Example 8.

Spread 94. Right. Ivy (*Hedera helix*) used as a tranquilizing drug.

Vulgar Latin.

*meina opaut ei naus næ eina dopeinar lio naus omanaus oas
nos eiona olaus onas olar olais oma naus domas olas oraus
monar eorla dollar æna dola omona dolor eia dolais opasa
æos orleena eiina larena ein aus os eor las asa
naus eelas orlaus orliona alaus omais nas oliena alaso
taus eala domena omara eina nar na e ele aus el doqu*

*peinas os aus eios lat os art a k o ele ia orlais asa
ama dolaus alar ena dola otais ea laina nasa
omas ena namena*

Transliteration

I see a truly potent medicine as an amazing method for relaxing and soothing, for which we praise our gracious god. It has a good smelling odour to help the mother control the nausea waves and bring salvation to our noble monarch. Cut, boil and chop pieces of the magical remedy when the aching occurs, and the queen will have golden dreams as the little one proceeds below. The berries are pruned from the edge, with the greenery where it is most fragrant on the outer branches. It is a holy method for containing the fire below everywhere, when the pain below reaffirms its hold. First chant for the little one and then the mastic resin will carry the problem away with the same purpose.

Note: In the Mediterranean region, ivy exudes a sappy resin (mastic), which was used as medicinal incense. So the patient both ingested the medicine and breathed in fumes from the mastic.

Example 9.

Spread 37. Left. Wild Lupin Beans (*Lupinus albus*). First paragraph.

Vulgar Latin.

*peas ota do quososa æoaus meia e eliea omaus epeas naus
domas eor omaus domos amas o eos eima eleos nosa
nea mea amos t omaus dopeos omas omeaus t
domeos a la ma na naus emeos*

Transliteration

These seed-heads are grown as part of my court collection to be eaten as food. They are a new favourite, so we grow them at home to control the crop. The herb grows even more and can be acquired at home from my garden.

Example 10.

Spread 78, Right. Therapeutic bathing for post-natal grief. Main text, first paragraph.

Vulgar Latin.

*mæinos æina dop eina dolina na dolor ola
doleina dolina æina meina omas orlina nasa
d ele ena domar nor eina dolena dolais orlina
a liena domar nor æina dolinas e eme ia olos nos os*

dolar omina dolina dolina nar dolena t nasa
 næina dolina olas dolena æina alena æina dola
 t eina leina dolina e ele n dolais eina domina na
 næina neina doleina omena omor mena oraus
 dola oleina æ eima domeina omea æ ele ena tolör os
 nos æ i lena dolor liena omena or mena e ele ena
 dolina or lena dolais olena lena morn a doleina na
 t os ei ele a os e ele na nor lena dolinina dolas or
 n e ele ena dolena dolina olena nar as olein orlais
 dolor omen olais ein os aros a
 tous las lena pæia me nor mna
 or eina dolais nas as olais
 a eios aus oleina dolais er
 tor æina nar æna dola ena
 r eina dolais e eel a r olena
 a e en dolais naus e ele na rs
 t ais æ eo os leina sous oliena
 doliena lena doleia dolina oror
 t oliena lior ros ais orleia s aus
 tor æia lata os æina dienas ais aor
 naus e ele ar naur arna

Transliteration.

This is a wisdom therapy bathing method for the treatment of mothers in grief. The mourning therapy bath is potent, because it uses the divine glow to remove the sorrow. We buy the fragrance for the wisdom therapy bath and the divine power reduces the sorrow with its holy fire. It is a wise method of harvesting the sorrow by breathing and removing. This device allows the lady to mourn without pain. The method allows a new start by using the guidance of prayer to kill and leave behind the mourning. You anoint all of the area with balsam and the energy soothes the low-mood in a stroke. The bathing energy causes the mourning to cease as the repeated bathing shapes it by using the holy light in the oil and chanting. The sorrow is perceived by the force and is all eroded and removed by the oils. You reaffirm below by anointing the pain and then washing away. The holy light removes the nausea and it is departed. We ask for the fragrance to use its energy below by praying. The fragrance brings smoothness and comfort there below, so the condition is turned and carried away by wisdom over days with the food of breathing the air of holy fire and light.

Note: Although the transliteration is a best approximation of the author's message, one can still see that the text is not very succinct, as it is given over to persuasive repetition. This is quite typical of the overall prose style. In modern terms, we might say there are many adjuncts and disjuncts.

Example 11.

Spread 1. Right. The very first line of the manuscript: The original book title.

Vulgar Latin.

Qua eeat a lar as a maus æor eos eme set a lot æor na

Transliteration.

What protection one needs to be sure to acquire for the evils set in one's fate.

Palaeographic analysis of the above.

Manuscript	Latin	Romance
Qua	what, which, that	
eeat (eat)	I proceed	
a	of, to	
lar	protection (household spirit)	
as		at, in - <i>Catalan</i>
a	of, to	
maus (singular: mal)		evils - <i>French</i>
æor (eor)	proceed	
eos	them, they	
eme	I acquire	
set	but, hence	
a	of, to	
lot		fate (one's lot in life) - <i>French</i> .
æor (eor)	proceed	
na	move forward, survive (swim, float, fly)	

Conclusion: As most words can be sourced direct from Latin, with definitive meanings, and the remainder can be located unaltered within the Romance languages, then the translation to Italics is unambiguous. The language is proto-Romance, as it combines Latin with Romance, and the symbols are proto-Italic.

Other suitable transliterations into modern English might be:

1. *The protection one needs to acquire to survive the evils set in one's fate.*
2. *Protection from evils that one needs to acquire to survive one's lot in life.*
3. *I acquire protection from the evils in life in order to survive my fate.*

This example demonstrates that the proposed solution to manuscript MS 408 is correct, as the 'degrees of freedom' are minimal and the sequence of resulting words is clearly meaningful: i.e. it takes little interpretive effort to transliterate them into a logical sentence in modern English.

In addition, given the nature of the content of the manuscript, the outcome of the translation and transliteration would seem to be appropriate as an introductory line. The author is explaining that the book will provide instruction to the reader with regard to treatment of physical and mental maladies in order to be carried through life. Central to the belief system was the idea of the protective household spirit: *lar*.

Example 11b. Palaeographic analysis of line 2, Spread 1.

Manuscript	Latin	Romance
t (terminus)	full-stop, period	

osa	I dislike, hate	
eleas (eles)		them - <i>Old Portuguese</i>
os	to speak, to mouth,	
a	as	
lais		religious servant - <i>Old French</i>
eo	I go	
maus (singular: mal)		evils – <i>French</i>
æas (eas)	I act	
ait	I say, assert	
emeas	I provide	
emeas	I provide	
nas (na: singular)	To swim, float, survive	

Conclusion: As most words can be sourced direct from Latin, with definitive meanings, and the remainder can be located unaltered within the Romance languages, then the translation to Italics is unambiguous. The language is proto-Romance, as it combines Latin with Romance, and the symbols are proto-Italic.

Suitable transliterations into modern English might be:

1. *I dislike them [evils] so, as your religious servant, I go to those evils and say, and act and assert to provide your survival.*
2. *As your religious servant, I say and act and assert to doubly provide you with survival from those evils.*

Again, this example demonstrates that the proposed solution to manuscript MS 408 is correct, as the 'degrees of freedom' are minimal and the sequence of resulting words is clearly meaningful: i.e. it takes little interpretive effort to transliterate them into a logical sentence in modern English.

In addition, the second line has logical corollary from the first line: 1. *The protection one needs to acquire to survive the evils set in one's fate.* 2. *As your religious servant I say, and act and assert to doubly provide you with survival from evils.*

The author is clearly selling her knowledge and expertise to the intended reader, whom we presume to have been a female royal of court.

Example 12.

Spread 3. Right. Pondweed for urinary infections: *Hydrilla verticillata*. Water-nymph.

Vulgar Latin.

mæiot dopar eos emeor naisata

aeios eos nasa domeasa easa

oeos doeios eor naus emea

teia eos ear easa easa eo

dollar eorora t easa emeor

a e maus eos emeosa omar nasa

omeor donaus eosa æosa nasao

a æios eos eor ola natao

æo a os æior nasa omeona or

anas eor emeosa

peior æor tort æior æia
 olan aus doleor do teonasa o emea
 doleia dom æia dolona dolæia eiona
 eos donais oleia doliia

mæioas osa æas os eos oreta eosa omeosa
 omeor eor t eior el æ a doleosa dolor naus
 t oeo sa oliosa ameona doleio nar tasa

peiornosa æonaus dopeios dopor op eor doma
 omeos or eios do ios nais domior dotaus
 a eios eor onaus eor t aus olor os asa

Transliteration.

Medication for urinary infection they acquire from the water-nymph [plant]. They massage the dome where it is painful while the substance makes it go away by forming a veil, so that a new day begins from the suffering. It collects the bad because our love grants that it is found and conveyed from the lake. It is gathered for the pot in the mouths of teenage swimmers like dabbling ducks.

The contortions become worse with age, when down below hurts, but god lifts the sadness with his gift to the condition at the cause when they consent to give the ointment.

I dare to urinate about an hour after administering the love. The painfulness is removed by the substance's ointment very pleasantly and at an agreeable rate.

At our worst age this medication is used to control the body, by reaffirming the organ. It also reaffirms the opening and stops the lower aroma.

Note: Clearly the naïve Mediaeval logic was such that urinary infection (cystitis) was naturally associated with bodies of water, so water plants were believed to hold the cure. As there was no scientific knowledge of the body fighting off infection with antibodies, then natural recovery from infections would have been attributed to the administered homeopathic remedies and thereby perpetuated belief in them.

Discussion.

Having translated and transliterated various key words and excerpts of the MS 408 manuscript, it demonstrates that the described method of decryption is correct. The translations to Vulgar Latin are accurate as they are 'letter for letter - word for word', whilst the transliterations are a matter

of interpretation, given that the Vulgar Latin vocabulary is ambiguous and that the grammatical structure is simplified and primitive by comparison with modern language. It is similar to the way newspapers simplify their headline copy, by using only the key words and omitting the connectives to save on space, leaving the reader to put them in.

Despite its simplicity, the MS 408 alphabet is also misleading. This is due to a number of factors: the absence of dedicated punctuation marks (resulting in symbol duality, diphthongs, triphthongs and quadruphthongs); the close similarity of symbols with different phonetic meaning; the proto-Italic stage in evolution of the symbols; the language being largely unknown due to its own evolutionary stage and being hidden within many modern languages. The symbols are prototypes as they had not yet been fully defined, and one can see how most of their eventual modern forms came into being as punctuation developed. There is no indication that the MS 408 symbols are a code designed to prevent access, but merely a phonetic alphabet that required identifying along with grammatical rules that required apprehending.

The language used is a late dialect of Vulgar Latin or proto-Romance, with greatly simplified word and sentence composition, which has consequently resulted in high ambiguity in word meaning. This is further amplified by the absence of various phonemes, either because they have been dropped, because they have become silent or because they have yet to be adopted as syllabic junctions or new phonemes.

Indications are that the manuscript is an example of the informal spoken tongue rendered into text, rather than the product of any formality or taught standard. It seems likely that the language was the Italian *lingua franca* within high society, courts and monasteries comprising people from many nationalities, due to political, business and spiritual migrations in the High Mediaeval in southern Europe. To that extent, it is much like the 'Vulgar English' spoken and written across Europe in the modern day, which is usually adequate for general discussion but often inadequate for detailed and specific communication.

Classical Latin typically uses the closure of words to indicate specific meaning in terms, but this has been largely lost in the MS 408 form of Vulgar Latin, leaving the reader to interpret meaning from context. It seems that this simplification of Latin had an ironic consequence, as it forced the introduction of new words in order to re-establish more specific meanings and increase vocabulary, so that Vulgar Latin ultimately speciated into its descendent Romance languages when the political map caused multiple cultural isolations following the end of the Mediaeval.

Zodiac pages.

For anyone who remains sceptical about the identification of proto-Romance as the language, one only needs to examine the zodiac pages (Spreads 70-75). The central zodiac symbols have been overwritten with labels, giving the names of the months, using familiar Italics, but still using the

proto-Romance lexicon. They therefore function as further proof, as the words survive today in various Romance languages: Portuguese, Catalan, Spanish, French, Italian, Galician, Occitan. These labels were thus added to the manuscript soon after the manuscript was completed, when proto-Romance was still in use. Furthermore, the use of the inverted 'd' for June and July demonstrates that the labels were contemporaneous additions. It seems likely that the author of the book was using a local form of proto-Italics and the person who added the labels was educated in a more widespread form of Italics that were transitioning to the modern alphabet we know today.

This too, had been hiding in plain sight, as it would have betrayed proto-Romance as the language had it been noticed earlier by anyone else. However, it was discovered six months after decryption of the main text symbols and by the same researcher, thereby serving as a sort of 'Rosetta Stone' within the manuscript. As the labels use proto-Romance and the phoneme for d/j is still transitional between proto-Italics and modern Italics, then it supports hypothesis beyond reasonable doubt.

The zodiac pages in sequence:

70R. Image: two fishes = Pisces. Overwritten word: **mars** – March in French.

Note: This was the first month of the Roman calendar. The Gregorian calendar was introduced in 1582 by Pope Gregory VIII, which post-dates the manuscript by approximately 50 years.

71L. Image: ram = Aries. Overwritten word: **abril** – April in Portuguese, Catalan, Spanish, Galician.

71R. Image: ram = Aries. Overwritten word: **abril** – April in Portuguese, Catalan. Spanish, Galician.

72L. Left: Image: bull = Taurus. Overwritten word: **ayo** (*mayo*) – May in Old Portuguese, Spanish.

72I. Middle: Image: bull = Taurus. Overwritten word: **ayo** (*mayo*) – May in Old Portuguese, Spanish.

Note: The initial letter 'm' is silent, due to Iberian pronunciation habit: *em'ayo*.

Right. Image: boy and girl twins = Gemini. Overwritten word: **duny** (*juny*) – June in Catalan.

Note: Same-sex twins symbol is the more familiar in the modern day.

72. Image: two lobsters (raw and cooked) = Cancer. Overwritten word: **dulho** (*julho*) – July in Portuguese.

Note: the more familiar crab symbol was adopted later.

Note: The letter 'j' is still represented as a proto-Italic inverted 'd' in June and July – explaining how the symbol j evolved.

72R. Left. Image: lion = Leo. Overwritten word: **agost** – August in Catalan, Occitan.

Right. Image: virgin = Virgo. Overwritten word: **setembre** – September in Catalan, Occitan, Old French.

Note: The initial letter 's' is the Medieval 'long s', which looks similar to the modern lowercase 'f'.

73.L. Image: scales = Libra. Overwritten word: **octobre** – October in French, Occitan.

73R. Image: scorpion = Scorpio. Overwritten word - **novembre** – November in Italian

Note: The scorpion was often incorrectly drawn as a mythical animal with a long stinging tail, because people had not seen a real scorpion. Also, it is a water sign, along with Cancer and Pisces, so it was sometimes depicted as a marine creature.

74. Omitted.

75.L. Image: archer – Sagittarius. Overwritten word: **decembre** – December in French.

Note: The Sagittarius symbol later became a centaur.

The zodiac pages for Capricorn (January) and Aquarius (February) are missing from the zodiac sequence. However, there are two pages cut from the manuscript between 75.L and 75.R, which indicates their fate. Sequentially, they would have been the 11th and 12th signs, due to the Roman calendar used at the time of the manuscript, which started with Pisces (March) as the 1st sign.

Although the Roman calendar comprised 10 months, it also included a 'winter' period between December and March, which become January and February, and therefore accommodated Capricorn and Aquarius.

Conclusion.

In plain terms, the writing system used for the MS 408 manuscript was inadequate and transitional, as it was an attempt to pull spoken Vulgar Latin back to the written page, following a long period of oral tradition. Inevitably, its proto-Italic symbols would require refinement, along with the development of punctuation and grammar, until the modern Italic system emerged. Concurrently, Vulgar Latin transitioned into proto-Romance and gave rise to the various Romance languages, as they each evolved in relative geopolitical isolation. Thus, Vulgar Latin was absorbed into the modern languages, where it now survives in fragmentary and vestigial form, much like the DNA of an ancestral species underpinning the genetic make up and relatedness of several new species.

With regard to the content of the MS 408 manuscript, it is evidently rather prosaic, and sometimes anodyne, information regarding herbal remedies, distillations and therapies in combination with prayer. In modern parlance it is a book on homeopathy, with specific antenatal and postnatal focus through praise. As it is belief-system based, rather than scientifically based, there are frequent spiritual and religious references as part of the instruction and guidance. This was inevitable at a point in history where empirical medical understanding was yet to develop,

so communing with their god played an important role in all aspects of life, as it was believed to hold sway over one's fate.

The illustrations are naïve and largely inaccurate, or imprecise, especially those of the plants, as the author was clearly more concerned with the useful parts of the plants than their exact botanical anatomy. Few are named; probably because common or local names would have had no value in a multinational community and scientific naming hadn't yet been invented, which is why they are drawn and painted. In addition, the sketches may not have been taken from living specimens. Nevertheless, most species can be identified quite readily with a little research and common sense based on the visual clues and information in the text.

The primitive figurative drawings and diagrams are really illustrations of imagined belief concepts, rather than reality, designed to add visual meaning to the text, which often uses ambiguous wording and often imparts little practical information relative to its verbosity. Thus, the manuscript required the inclusion of illustrations for the reader to more fully understand the text and thereby access the instruction offered. Of course, if indeed the author was a linguistic foreigner then they would also have been aware of the limitations of their vocal and written language, so the illustrations would have been an attempt to embellish their communication.

At that time distillation was a branch of the fanciful idea of alchemy. It was believed that supernatural energies could be extracted from certain plants depending on their characteristics: often due to their resemblance to parts of the human anatomy or to Christian emblems. In the case of olive oil, its colour was evidently believed to represent the golden glow of holiness, so that one might be anointed with holiness or one might consume the same holiness. Thus one could be externally and internally communicated with god by using olive oil as the conduit, which must have been a very reassuring notion in times of emotional and physical distress and need when little else was available aside from recuperation and rest. Of course, we now know that olive oil is highly nutritious scientifically, and it seems that the anecdotal benefits of consuming it were attributed to higher authority instead.

As to the author or authors of the MS 408 manuscript; the clues suggest someone who divided their time between collecting and growing herbs, and imparting medical advice and guidance to court: most likely a nun of fairly high rank, who had cultivated a reputation for homeopathy, natal care and matters of the heart: a Mediaeval obstetrician, gynaecologist and practitioner. It may be that the variation in handwriting is due to her having used various underlings to dictate her words, or that her own writing style simply varied depending on her mood and circumstance.

Fig. 31 An exercise in reading the MS 408 font:

80 H08c P22082 P11ca2c q2 301u208 0 408c
 20 g1111 H1u22 28a8211a2c 984 28a82112c8a2c

The key characteristics of the MS 408 manuscript.

- Dedicated punctuation marks are lacking, except for single letter abbreviations: e.g. 't' for terminus.
- Uppercase and lowercase letter differentiation is absent.
- Different letter and phrase forms are used to denote punctuation, as well as sentence structure.
- The symbols are proto-Italic, combining various Ancient alphabetic points of origin: Latin, Greek, Arabic, Phoenician and Semitic.
- The lack of double consonants was an indicator of likely language, due to their abandonment during the Early Mediaeval (Dark Ages).
- The language is Vulgar Latin or proto-Romance, which has been absorbed into the modern Romance languages and some non-Romance languages.
- The manuscript alphabet is relatively small (15 characters) and lacks some standard modern phonemes, which has resulted in high ambiguity of meaning in words and phrases.
- The manuscript is the only known document written in proto-Romance language and using proto-Italic letter symbols as its writing system.
- The 'Zodiac' pages have overwritten labels, which are the names of the relevant months of the year, again written in proto-Romance, but this time using modern Italics, instead of proto-Italics.
- The phoneme for d/j is a transitional symbol, providing a contemporaneous link between the two writing systems used in the manuscript.
- The companion paper Linguistically Dating and Locating Manuscript MS408 shows that the manuscript dates from 1444 and was created on the island of Ischia.

Symbol-Italic key for MS 408.			
Symbol	Italic	Symbol	Italic
a	a (trapped)	9	a (free)
aw	ais	aw	aus
æ	æ (ae, a, e, i)	4	d
c	e (short)	cc	e'e (intonation)
ε	é (long)	ι	i
ll	l (ll)	ele	ele (elle)
ll		ele	

	m (mm)		eme (emme)
8	n (nn)	o	o
Ɔ	p (pp)	Ɔ	epe (eppe)
Ɔ	qu	Ɔ	eque
Ɔ	r (rr)	Ɔ	s/z (ss, zz)
Ɔ Ɔ	s/z (ss, zz)	Ɔ	sa/za
Ɔ	t (tt)	Ɔ	ta
u	u	π τ ˆ	v, f, fv, ph, pv

References.

Allen, S. W. 2003. *Vox Latina – a guide to the pronunciation of Classical Latin* (2nd ed.).

Cambridge: Cambridge University Press. ISBN 0-521-37936-9

Amancio, D. R., Altmann, E. G., Rybski, D., Oliveira, O. N., Costa, L d F. 2013. Probing the statistical properties of unknown texts: application to the Voynich Manuscript. *PloS One*. Doi: <https://doi.org/10.1371/journal.pone.0067310>

Barlow, M. 2010. The Voynich Manuscript: by Voynich? *Cryptologia*. Vol. 10. No. 4. Pp. 210-216.

Barschius, G. 1637. Letter of correspondence from alchemist at the court of Rudolf II of Prague, Georgius Barschius to Jesuit scholar Athanasius Kircher, with copied excerpts of the manuscript for Kircher to translate . Transcription from Latin to English: doi: http://philipneal.net/voynichsources/barschius_1637_english/

Bauer, C. 2012. 100 years times two: Alan Turing and the Voynich Manuscript. *Cryptologia*. Vol. 36. No. 2. Pp. 85-87.

Brumbaugh, R. S. 1975. The solution of the "Roger Bacon" cipher. *The Yale University Library Gazette*. Vol. 49. No. 4. Pp. 347-355.

Clemens, R., Harkness, D. 2016. *The Voynich Manuscript*. Beinecke Library and Yale University. ISBN: 9780300217230.

Cummings, M. 2016. Mysterious Voynich Manuscript reborn in facsimile edition. *Yale News*. Doi: <http://news.yale.edu/2016/10/31/mysterious-voynich-manuscript-reborn-facsimile-edition>

D'imperio, M. E. 1976. *The Voynich Manuscript: an elegant enigma*. Aegean Park Press. California.

Garel, A. 2011. The Voynich Manuscript through an intersemiotic approach: a translation. *World Literature* 404. Doi: <http://journals.sfu.ca/wl404/index.php/book/article/view/29>

Guy, J. B. M. 1991. Statistical properties of two folios of the Voynich Manuscript. *Cryptologia*. Vol. 15. No. 3. Pp. 207-218.

Guy, J. B. M. 1997. The distribution of signs 'c' and 'o' in the Voynich Manuscript: evidence for a real language? *Cryptologia*. Vol. 21. No. 1. Pp. 51-54.

Halliwell, J., Crossley, J., Bailey, J., James M. (Editors). 2013. *John Dee's diary, catalogue of manuscripts and selected letters* (originally published 1842). Cambridge University Press. ISBN: 9781108050562.

Joven, E. 2006. *The book of god and physics: a novel of the Voynich mystery*. William Morrow & Co. ISBN: 0061456861.

Kennedy, G., Churchill, R. 2006. *The Voynich Manuscript. The mysterious code that has defied interpretation for centuries*. Simon and Schuster.

Kircher, A. 1639. Letter of correspondence from Jesuit scholar Anthanasius Kircher to Jesuit priest Theodorus Moretus upon receipt of the manuscript. Transcription from Latin to English: doi: http://philipneal.net/voynichsources/kircher_1639_english/

Landini, G. 2001. Evidence of linguistic structure in the Voynich Manuscript, using spectral analysis. *Cryptologia*. Vol. 25. No. 4. Pp. 275-295.

Montemurro, M. A., Zanette, D. H. 2013. Keyword and co-occurrence patterns in the Voynich Manuscript: an information-theoretical analysis. *PloS One*. Doi: <https://doi.org/10.1371/journal.pone.0066344>

Pelling, N. 2006. *The curse of the Voynich. The secret history of the 'World's Most Mysterious Manuscript'*. Compelling Press. ISBN: 9780955316005

Reeds, J. 2010. William F. Friedman's transcription of the Voynich Manuscript. *Cryptologia*. Vol. 19. No. 1. Pp. 1-23.

Reddy, S., Knight, K. 2011. What we know about the Voynich Manuscript. *LaTeCH '11 Proceedings of the 5th ACL-HLT Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities*. Pp. 78-86. ISBN: 9781937284046.

Rugg, G. 2004. An elegant hoax? A possible solution to the Voynich Manuscript. *Cryptologia*. Vol. 28. No. 1. Pp. 31-46.

Rugg, G. 2004. The mystery of the Voynich Manuscript. *Scientific American*. Vol. 291. No. 1. Pp. 104-109.

Rugg, G., Taylor, G. 2016. Hoaxing statistical features of the Voynich Manuscript. *Cryptologia*. Vol. 41. No. 3. Pp. 247-268.

Russell-Wood, A. J. R. 1992. *The Portuguese Empire, 1415-1808: a world on the move*. The Johns Hopkins University Press. ISBN: 0801859557.

Schinner, A. 2007. The Voynich Manuscript: evidence of the 'Hoax Hypothesis'. *Cryptologia*. Vol. 31. No. 2. Pp. 104-197.

Schmeh, K. 2013. A milestone in Voynich Manuscript research: Voynich 100 Conference in Monte Porzio Catone, Italy. *Cryptologia*. Vol. 37. No. 3.

Williams, R. L. 2010. A note on the Voynich Manuscript. *Cryptologia*. Vol. 23. No. 4. Pp. 305-309.

Bibliography.

Clark, A. C. (1910). *The cursus in Mediaeval and Vulgar Latin*. Clarendon Press. Pre-ISBN.

Gildersleeve, B. L., Lodge, G. (1867). *Latin Grammar*. Macmillan & Co. Third Edition 1903. Pre-ISBN.

Grandgent, C. H. (1907). *An introduction to Vulgar Latin*. Heath's Modern Language Series. D. C. Heath & Co. Publishers. Pre-ISBN.

Herman, J. (1967). *Vulgar Latin*. (Translated by Roger Wright: 2000). Penn State University Press. ISBN: 9780271020013.

Herman, J. (2005). *From Latin to the Romance languages: new historical linguistic studies*. De Gruyter. ISBN: 9783484504998.

Lathrop, T. (2006). *The evolution of Spanish*. Cervantes & Co. ISBN: 978-1-58977-014-0

Muller, H. F. (1929). *A chronology of Vulgar Latin*. Max Niemeyer Verlag. Pre-ISBN.

Muller, H. F., Taylor, P. (1932). *A chrestomathy of Vulgar Latin*. D. C. Heath & Co. Pre-ISBN.

Quirk, R. J. (2006). *The Appendix Probi; a scholar's guide to text and context*. Cuesta Books. ISBN: 1-58871-109-9

Wright, R. (1982). *Late Latin and early Romance in Spain and Carolingian France*. Francis Cairns. ISBN: 0-905205-12-X

Wright, R [Editor]. (1991). *Latin and the Romance languages in the early Middle Ages* (Summary of the Rutgers University Conference, 1989). Penn State University Press. ISBN: 9780271029870.