ABSTRACT

The accuracy of Portolan charts has been shown in my previous texts, ChCs/1 and ChCs/2 where I have compared them to each other and a geographical Mercator map.

But in 1987 J T Lanman wrote “On the origin of Portolan Charts” and within chapter 8, “A proposal for the origin of Portolan charts” he wrote 6 sections (large paragraphs) and a concluding paragraph. The 6 sections are Data Base, Projection, Skewing, Purpose, Distortion and Contemporary evidence.

This text illustrates that J T Lanman was misguided in his theoretical approach, when he concluded that an accurate chart could be drawn from the data within the coastal section of the text, “Lo Conpasso de Navegare”, when it patently cannot. He also concluded there was a magnetic declination used to plot the coastal courses within the text. Then he used a square grid for his reconstruction which has been shown to be nonsensical. The graticule is rectangular and although it appears to accord to a Mercator map, that is coincidental.

That his points are spurious is amply illustrated in this analytical text. It is necessary to point out though that J T Lanman used a text with many errors for the distances and bearings, and appears not to have cross checked the distances from the Peleio route distances which are multitudinous within the text and generally very accurate.

Thus I am able to add a postscript to this analytical text which has a surprising conclusion concerning the actual possibility of drawing a map from “Lo Conpasso De Navegare”. But it is nothing to do with J T Lanman’s theoretical charts.

This text is a précis of my complete analysis of “Lo Conpasso De Navegare” carried out to investigate the possible uses for the text and its accuracy. It concentrates only on the Western Mediterranean Sea area from the Pillars to Sicily, as a means of curtailing the text.

There are 23, A4 pages and 10, A4 diagrams.
4) Purpose of the Charts; a major purpose of Portolan Charts was to assist in sailing pelagic courses.

5) A Distortion common to C de N (SG) and Carta Pisana (CP); The Italian peninsula showed an unusual and closely similar distortion in both the chart made from C de N, the oldest surviving Italian "Portolano", and the Carta Pisana, the oldest surviving Portolan Chart.

6) Contemporary evidence; Unequivocal contemporary evidence that Portolan Charts of the Mediterranean were drawn from sailing directions was found in a 1630 atlas by Joao Teixera.

His concluding paragraph is merely a reiteration of the fact he believes early Portolan Charts were drawn primarily from coastal sailing directions and data supplied by early Portolani.

This text was made possible by the utilisation of four previous texts and sterling research by Patrick Gautier Dalche and Alessandra Debanne, listed now as follows;

1)” Il Compasso da Navegare”, trans by R B Motzo, 1942 and 1947, Cagliari, Sardinia
2)” Lo Conpasso de Navegare”, trans A Debanne, 2011, P I E peter lang, Bruxelles
3)” Il Portolano di Grazia Pauli”, trans B R Motzo, comp 1987 by Angela Terrosu Asole, Cagliari

I would draw your attention to chapter 3 of “Shipping, Trade and Crusade in the Medieval Mediterranean”, entitled, “An unpublished Medieval Portolan of the Mediterranean in Minneapolis”, James Ford Bell Library, index ‘1300Po’ containing 81 folios of the text “Portolano dell’Adriaticoe e Mediterra Mss”. Chapter 3 is by David Jacoby, who on page 70 states, ”M mentions a much larger number of localities and contains far more elaborate and precise nautical data and sailing instructions than the Liber de Existencia Riveriarum and the Conpasso de Navegare. It would be helpful if the text was made available online.

RESEARCH METHODOLOGY FOR THIS TEXT

Having researched the “Portolan Chart” phenomena, investigated how one could be drawn, the materials etc, then investigated the oldest known 10 Portolan Charts (my texts ChCs/1 and ChCs/2) to obtain a possible sequential development, I concluded that the “map within the Portolan” was in fact similar to a Mercator projection but probably based upon or similar to the ideas put forward by Marinus the Tyrian and Claudius Ptolemy of a proportional graticule based upon the length of the Latitudinal and Longitudinal degrees of the Mediterranean Sea general area. The Peleio routes confirmed this theoretical stance.

Thus having read previous to my research J T Lanman’s 1987 paper, I now found it seriously flawed in its research and conclusions. The original c1250AD/1296AD text thus had to be investigated and measured against the J T Lanman text to resolve the dichotomy existing.

In order to quantify the difference it was necessary to repeat the whole exercise carried out by J T Lanman, but this time not using a scale of 1:2,849,300 at 40° latitude, (which I find quite ridiculous as it is so small as to negate plotting anything and any charts
compared at this scale will be nonsensical as the differences will be unreadable). I therefore chose to work on maps scale 1:250,000 where possible, plotted it all out on 1:1,000,000 maps and drew the diagrams for the pelagic routes finally on a 1:3,000,000 scale map. Thus I am working at a scale some 11 times larger for individual route recognition and examination and 3 times larger for my final drawn plots. Naturally these maps used are monstrously large and were generally for individual countries and parts thereof, but my trusty parallel motion drawing board which is 900 x 1300mm was utilised to allow for accuracy of plot and angular directional measurement.

I have chosen in this text to limit the illustration of the findings to the western Mediterranean Sea from Cape St Vincent to Italy/Sicily as this area fairly represents the overall study carried out.

In my text I refer to distances and directions as correct when it is obvious there are minor discrepancies for both. I cannot quantify, nor can any other researcher the actual accuracy of the text for distance or direction. Thus if either are obviously quite close in their description I have accepted them as accurate and not indicated an error. I have also only noted differences without comment purely to illustrate they are at times so small as to be inconsequential. I consider the use of statistics to evaluate these discrepancies because there are so many variables as an irrelevance, serving only to compound the truism, “lies, damn lies and statistics”.

TEXT TERMINOLOGY

There is a peculiar term in the text, sover, which does not appear in the medieval litany for Italian. It occurs in folios 1r, 1v and 2r. The word is not in the glossary by A Debanne and thus (as usual) I requested assistance from an expert at UCL. It was his translation after much thought about the sentences which enabled the word to be determined as “sopre” which although having many meanings could be used as “above” and “over” (lies opposite) and fits the actuality of the coastline. The residue of the text, if necessary, is my translation using the glossary and a special website for medieval Italian.

The examples are;
Sover lo dicto Talfagar, en mare VII millara per garbino a una secca. Folio 1v.
Above the said Trafalgar in the sea 7 millara to the southwest there is a shoal.

La dicta isola stai sover la citta en mare appresso mezzo millara. Folio 2r.
The said island stands over (= lies opposite) the city in the sea about ½ millara.

THE ERRORS

In his text J T Lanman confirms he utilised “Lo Compasso de Navegare” by B R Motzo dated 1947. This was criticised by Alessandra Debanne in the 2011 text, although it had previously been criticised by Patrick Gautier Dalche in his 1995 text. Alessandra Debanne also criticised some of P Gautier Dalche’s listings and thus I carried out a correlation of the two error lists and from that check confirmed that I could accept the list by A Debanne as the authoritative amendments to the B R Motzo 1947 text. Within A Debanne’s text the corrections are listed on pages 343-351 and they are on pages 205-219 of P G
Dalche’s. However this does not cover the obvious original copyist errors that I have discovered within the text. They are noted in each section as it is discussed.

THE CORRECTIONS FROM ALESSANDRA DEBANNE TEXT PAGES 343-351

<table>
<thead>
<tr>
<th>FOLIO</th>
<th>MOTZO</th>
<th>DEBANNE</th>
<th>DIFFERENCE</th>
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<tr>
<td>10v9</td>
<td>II</td>
<td>IIJ</td>
<td>+J</td>
</tr>
<tr>
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<td>XL</td>
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<td>+20</td>
</tr>
<tr>
<td>15v6</td>
<td>XV</td>
<td>XX</td>
<td>+5</td>
</tr>
<tr>
<td>17v10</td>
<td>XL</td>
<td>LX</td>
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</tr>
<tr>
<td>19v1</td>
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<td>+J</td>
</tr>
<tr>
<td>22r12</td>
<td>XV</td>
<td>V</td>
<td>-10</td>
</tr>
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<td>24v7</td>
<td>XX</td>
<td>X</td>
<td>-10</td>
</tr>
<tr>
<td>27v10</td>
<td>LX</td>
<td>XL</td>
<td>-20</td>
</tr>
<tr>
<td>31r1</td>
<td>XV</td>
<td>J</td>
<td>-14</td>
</tr>
<tr>
<td>31v7</td>
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<tr>
<td>45v15</td>
<td>XXX</td>
<td>XXXV</td>
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</tr>
<tr>
<td>71r15</td>
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</tr>
<tr>
<td>73r7</td>
<td>XL</td>
<td>Lx</td>
<td>+20</td>
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</table>

Pelagic routes

<table>
<thead>
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<th>FOLIO</th>
<th>MOTZO</th>
<th>DEBANNE</th>
<th>DIFFERENCE</th>
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<tbody>
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<td>CCCCL</td>
<td>+100</td>
</tr>
<tr>
<td>54r19</td>
<td>CCC</td>
<td>CCC</td>
<td>+100</td>
</tr>
<tr>
<td>65r16</td>
<td>CLXXX</td>
<td>CLXXXX</td>
<td>+10</td>
</tr>
<tr>
<td>65v7</td>
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<tr>
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<td>CLXXX</td>
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<td>+10</td>
</tr>
<tr>
<td>66r5</td>
<td>CXXX</td>
<td>XXX</td>
<td>-100</td>
</tr>
<tr>
<td>80v18</td>
<td>CCLXX</td>
<td>CCLX</td>
<td>-10</td>
</tr>
</tbody>
</table>

Thus we can immediately see that the + signs show a deficit in the route/coastline and the – sign indicates a lengthening of the coastline. Folios 10 to 19 are for the east of France and then the complete west coast of Italy which rather suggests J T Lanman’s theory of a similarity of Italy on the charts is awry. Folios 22 to 31 are for the eastern seaboard of Italy and then the former Yugoslavian coast with f31 in Greece. The rest are so scattered as to be significant only for certain coasts but they finish at f73, Corsica.

The Pelagic routes are simply explained in the appropriate text sections following.

DISTANCE/BEARINGS PLOTTED FROM “LO COMPASSO DE NAVEGARE”

The text of “Lo Compasso de Navegare” is a travelogue by sea from Cape St Vincent, Iberia clockwise around the Mediterranean Sea basin coastline and returns to the Strait of Gibraltar/Pillars of Hercules.

It is not however a complete coastal plot as both in its smallest detail it fails with
major omissions, and does not cross link pelagic routes sufficiently for them to be helpful. The first major omission is the Golfo di Venezia at the head of the Adriatic Sea. The coastal “plot from Venice via Aquileia and Trieste to Pula in Hrvatska, is completely ignored finishing with the pelagic route Venice-Pula, 130 millara. But the text does indicate the existence of the area.

As J T Lanman noted, the coast of the former Yugoslavia is disjointed and is followed by the Peloponnese of Greece being described in so little detail as to be unacceptable. This led J T Lanman to infer certain distances and adjust the coastal plot to suit his ideas. This I consider to be a serious error (plates 1 & 2 in J T L text) and subjective alteration. But the fact that his method was to convert all distances etc., given in the “Lo Compasso” instead of actually drawing the individual sections onto large scale maps and not the graph paper chosen is a far greater error of judgement. If the individual sections are to be properly evaluated, then the distance and bearing should be set against the appropriate section of coastline.

On reading the first words of the text the medieval author makes it very plain that it is “coastal” such that he writes,” Questo si e lo compasso e la starea de la terra si como se reguarda en quante millara per estarea. Thus these are distance and sailing directions for mariners to use and must equate to the individual coastal lengths as stated by “starea” that is “direction of the coast, coastal sailing”, to be of any use whatsoever. There should be no mathematical manipulation of the written data, but a comparison of individual texts should be made to spot the copyist errors (which unfortunately as will be shown abound). However, there is no proof that these written texts are not precisely as their authors intended. But, as this is not the original text we must expect copyist errors, transposition of numbers and note that simple errors of copying become more apparent as we progress around the coastline.

If J T Lanman had actually drawn the data given onto a large scale map it would have become immediately apparent that an instruction such as “Sirocco verso levante”, did not automatically mean a precise midpoint direction; that is SE to E mid is ESE. But, as will be shown it also means if the coastline accords, firstly sail “Sirocco” or SE following that coast and as it turns it leads eastwards, which is your final course, “Levante.” This is particularly apt as when sailing ESE on many occasions would be across dry land.

Now turning to the distances given in Lo Compasso, had a map been used to evaluate each it would have clearly shown there are distance errors and that the sailing direction between the authors chosen points are incomplete. However we must accept that the mariners of medieval times perhaps clearly understood the text and its presentation and that as they follow the coastline they did not require every variation to be noted in the text. Thus sailing by the text alone requires a balance of coastal knowledge and an understanding of how to read the shorthand description of the text.

Thus chapter 3 of J T Lanman’s text is a mathematical concoction based upon 20th century perceptions whereby we can invent formulae for any statistical idea, but never is the question asked, should we? Is this the correct methodology and does it fit the data intention. The answer to those questions in this instance is an emphatic no.
Thus what follows is an investigation of “Lo Compasso de Navegare” text as a mariner would have tried to use it sailing the coasts of the Mediterranean Sea basin. I do not intend writing all the 136 pages of sailing instructions but illustrate a sample where it is particularly pertinent to show the problems within the text. I have investigated it all!

The Pelagic routes are then explored in the second section of this text as it is a large corpus of data mainly ignored both by J T Lanman and subsequent researchers.

This text follows the text order of “Lo Compasso” and indicates folio and page numbers where appropriate to aid further research by interested parties.

LO COMPASSO DE NAVEGARE, CODICE HAMILTON 396.

The text begins as follows; Folio 1r.

\[ \text{In nomine d(omi)ni n(ost)ri Ih(es)u Christi amen. Incipit liber conpassuu(m).} \]
\[ \text{M.CC.LXXXVI de mense januarij fuit inceptu(m) opus istud.} \]
\[ \text{Lo Conpasso de navegare} \]
\[ \text{Questo si e lo compasso e la starea de la terra si como reguarda en quante millara per estarea. Enprimamente da lo capo de San Vice(n)co a venire de ver Espagna, ver levante.} \]

Thus from the very beginning of the text we read that this is a text for the direction of the coast, ”e la starea de la terra” and is considered an “antica tecnica di navigazione”. We should therefore expect a correlation with the text and coast line described there-in.

Folios 1r and 1v are directions from Cape St Vincent to Cadiz, with folios 2r and 2v covering the distance from Cadiz to Gibraltar.
There are problems throughout the text as the diagram illustrates, but the two longer routes described require separate analysis.

1) De lo dicto Cadesse a sSueta entro LX millara per sirocco. (Folio 1v)

From Cadiz to Cueta (Abila, the southern Pillar of Hercules), the first part of the route must be S30E (but sirocco is S45E, or SE), until opposite Cape Trafalgar. Then the route is E22.5S or ESE. The sirocco bearing cannot be used from Cadiz and the distance measure is closer to 100 millara or 123Km and thus the LX, or 60 millara should be written as CX. This is perhaps a simple copyist error. But the individual distance given from Cadiz to Cape Trafalgar of 30 millara per sirocco, should read 40 millara mezzo ver sirocco.

However when we read next;

De lo dicto capo de san Vicenzo entro Septa a CCC millara, a different accuracy arises. Thus 300 millara is c370Km, but the directly measured distance from a map is 350Km. It is therefore accurate, and it is possible to project a direct route from one to the other, although I suggest the route through the Strait of Gibraltar would be far from direct and the direction Levante Sirocco (ESE) because of the winds and currents. This is excellently set out by M Ponsich¹ in his text, “La navigation antique dans le Detroit de Gibraltar”. Thus the 300m or

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370Km is probably an ideal distance to allow for the course changes required.

I speculate that the directions given for the first two courses have perhaps been transposed by the copyist as no direction is given for the Cape St Vincent to Ceuta route as the diagram illustrates.

FOLIOS 2v to 5r INCLUSIVE; Gibraltar to Capo de Pali  

Moving around the coast of Iberia in an easterly and then north easterly direction, Gibraltar to Estopona, 20 mil per Greco ver la Tramontana pauco would actually be N27NE and as such closer to Tramontana verso Greco (NNE). The distance is 36Km or 30mil.

However when the text arrives at Malaga (Marica) and details the directions to Almeria, instead of the geographical easterly direction we have Greco ver Levante which pivots the whole coastline 2 winds northwards, as I have indicated upon the diagram. This is where J T Lanman proposes it is the basis for the Carta Pisana chart as it loosely follows that direction. The total actual route is Levante, then Greco, then Tramontana and not “Greco ver Levante terza vento”.

But if we study Folio 5r, we read of Pelagic Routes, Capo de Pali to Capo Gata, CLXX mil per garbino and Capo de Gata a Gibeltaria CCC mil per garbino ver lo ponente terza vente. Then it states, E cosi sono CCCCL mil de Septa entro Capo de Pali. But, Capo de Gata to Gibraltar is W15SW. However, if it is seen as a copyist error and should have been written “ponente ver lo garbino terza vente” it would have been correct. The distance is 237 mil, not 300 mil, even though the total coastal route is 375 mil as taken from text. Next, Capo
de Gata to Cueta is 240 mil and Capo de Pali to Gata is 135 mil, total 375 mil, and not the 450 mil that is CCCCL as written. Perhaps CCCL was original, a mistake easily made as the previous text has shown. There are numerous examples in the text of a spurious C, plus or minus, and total far more than those already noted by previous authors.

COMMENT

Thus in the first 5 folios there are serious errors which surely preclude a map being drawn that may be compared to a geographical map of any projection. It also raises serious questions concerning the accuracy of the text which was perhaps copied wholly or partly from a c1250 original, that itself may have been badly copied. The fact that the “Grazia Pauli Portolano” text has variations, correct variations, must lead to the conclusion that there are large errors in the transcription of 1296AD, and somewhere is another original text.

FOLIOS 6r to 8v, BARCELONA TO MARSEILLE.

Diagrams ChLCN/1/D03 and ChLCN/1/D04

Each single line and or paragraph in the BR Motzo text has been given a paragraph number for identification and taken from pages 8 to 11 of the 1947 text. They are noted in shorthand as each paragraph has unnecessary information which is not included.

Para 61; Barcelona to San Felice, LX mil per levante

It is actually 81Km not 74Km/60mil and the route is Greco12.5 Levante. The same text in Grazia Pauli, page 8, has Di Barcelona a satta Filici a Miglia LX per grecho di verso levante. Thus we can be sure there was a single text available with correct directions.

Para 62; San Felice to Palamore, XII mil, Greco ver levante.

The 12mil (c15km) is actually 12km, N40NE, which would be Greco only.

Para 64; Palamore to capo d’Acqua frecda, X mil, Greco ver levante.

X mil =12.3km, it is 14km but actually Greco Tramontana un poco, which is just north of North east, not south of NE.
Para 65; Capo Acqua Frecda, (Cape Bagur) to isola Mede, X mil tramontana
Offshore island which is not consequential to the main research.

Para 66; Capo de Mele e lo capo de lo golfo de Torrezella, tramontana e lo dicto capo Acqua Frecdo e lo capo da mezzo di. Lo dicto golfo ponente VIII mil. Item Mede a lo porto Rozo X mil tramontana.

The paragraph is therein incomplete but simply stated is 22km direct from Mede to Rosas and by text 8 + 10mil or 22km, tramontana, and thus finally accurately given.

Para 67; Rozo to Cadaquiro, VII mil, tramontana.

This section is seriously awry. Cadaques is virtually due east across the peninsula from Rosas, but to reach it by sea many course changes are required. Thus, leave Rosas sirocco, then turn levante, then greco then maestro into the rocky inlet that leads to the port. It is a total of 15mil or 18km and the final entry to Cadaques is 3km NW or Maestro.

I find it difficult to reconcile a mariner’s knowledge of sailing from Rosas to Cadaques with the text. But more importantly it means the J T Lanman plot is seriously awry.

Para 68; Cadaques to capo Croce (Cape Creus), VII mil, tramontana.

Again this section is seriously awry. Leaving Cadaques it is obviously 3km sirocco, then turning Greco to arrive 5km later at Cape Creus and its islands. Thus the overall VIImil is actually an acceptable distance measure but well off course as described and likely to negate a map plot.
COMMENT

Thus in this short section the directions tramontana which would have been used by J T Lanman are probably 14 millara and more in error northwards for the actual coastline. Please note the errors which follow, and compound the problem and negate his plot.

Para 70; Capo Acqua Fredeo to capo Linzolo de Marseillia, CLXXX per Greco.

This is one of the many exceptionally accurate pelagic courses. It is 180 millara and the direction is Greco. Thus we can state here that there is no magnetic declination involved and that the coastline has to be geographically correct and not slewed.

Para 71; Capo Croce to Capo Olivero, XXV, tramontana. A lo capo de mecco di uno millara a bom porto che se dice porto Venre.

Thus the text is stating capo Olivero is after Port Vendres in France. That cape is actually unseen from Cape Creus as you sail N35NW, not north, and it is necessary to round Cape Bear which is 2km south from Port Vendres entrance. It certainly is an excellent harbour and was originally Roman, “Porto Venaro”. It seems unusual to dismiss such a grand port by sailing back to it, if only in words. I wonder if the copyist made a mistake and corrected it thus. But, it raises the spectre again of major problems within the text.
Para 72; Capo Olivo to Narbona, (CL) (XL) tramontana.

BR Motzo has emended the text from 150mil to 40mil as a simple and easily spotted error of transcription. Thus we must be prepared for many more unseen errors in the text. The distance is 60km or 49mil from the cape to the entrance into the lagoon for Narbonne, the Etang de l’Ayrolle and thus the River Robine to actually reach Narbonne, rather than a beach landing in the Etang. Thus a distance of L mil would be appropriate.

Para 73; Narbonne to capo Conca, XXX mil, Greco ver tramontana.

The distance is acceptable but the course from Narbonne coastline to cape Agde is NE15E not NE/N.

Para 74; capo Conca to grado de lacte, XXX mil, Greco levante.

Lattes is now on the Etang du Mejear, which has access to the waterway to Montpellier. The route by passes the important coastal marker of Mont St Clair at Sete and is 45km or 37mil, at “Greco ver levante un poco”.

Para 75; grado de Lacte ver lo garbino (X mil) e un capo che se clama capo de Septa.

And thus we read the correction for missing the Cape of Sete which is actually midway between the two original points.

Para 76; Grado de lacte to Aigues Morte, XX mil, levante Greco.

Acceptable

Para 77; Aigues Morte to Acqua Frecda, CXXV mil, mezzo di garbino.

The direction is accurate but the distance should be CLXV, or c200km.

**I note here, and following, the simplicity of transcribing errors for Latin numerals.**

Para 78; Aigues Morte to Menorica, CCLXX, mezzo di ver silocco um poco.

The distance is 400km or CCCXXV mil and it is virtually due south. The um poco is thus acceptable. A pelagic route which is wrongly distanced as the next item indicates.

Para 79; Aigues Morte to Maiorica, CCC mil, mezzo di ver garbino poco.

The distance is 420km or CCCXL mil, but the direction is correct.

Para 80; Aigues Morte to Isola San Piero (Sardinia) CCCCLXXXXmil, sirocco ver lo mezzo di poco.

The distance is 600km or 485mil and thus that given is excellent. The bearing is also very good at SE10S, thus it is a major and very accurate pelagic course, and a check unit.

Paras 81 to 88 are minor distances varying from V to XIII mil and inconsequential to accuracy, but absolutely awry concerning the directions to be taken, as described next.

Para 89; Aigues Morte to Marseille, LXXXX mil, levante ver lo Greco.

This is one of those sections which are completely awry. Leaving Aigues Morte it is necessary to sail mezzo, then sirocco to head across the Golfo and make landfall off “Pointe
de Beauduc” prior to sailing levante to Grado de Passone, (Para 83). The course described in Paras 84 & 85, Greco and levante Greco, and in Paras 86 and 87, are the directions sirocco and levante. Thus it is impossible to sail the course given. The overall distance is 120km or C mil, and as such acceptable.

Thus it can be seen from the foregoing text that there are serious errors within the “Lo Compasso de Navegare” such that any chart drawn there from would be completely awry.

LIBER DE EXISTENCIA RIVERIARUM ET FORMA MARIS NOSTRI MEDITERRANEI

The following is a short extract from Liber de Existencia, lines 1895 to 1925, taken from the text by P G Dalche. It is in reverse order, but covers part of the above medieval Italian text. Line 1895 onwards;

Inde ad flumen Serignan computantur ml. xx.
Ad ciuitatem Nerbonam ml. xx.
Ad caput Leocate. x.
Inde uoluitur sinus Rosilioni habens usque ad Colliuerim, ubi est mens altus et portus bonus nomine Portu Veneris, ml.xl.
Inde ad caput Crucis.xxx., a quo primo longe ml. xx. Est alius portus qui dicitur Portus Legatus. Caput uero Crucis habens ante se insulam Cauichiera respicit an austro caput occidentale insule Minorice que Balearis dicitur.
Voluitur a capite Crucis riueria in circio usque ad Mete Ampuri, faciens sinus contra eurum. Inde uoluitur faciens stagnum fluentem per angustum ostiom, ante quod est insula Finoliera, et percurrit riueria in occasu usque ad ciuitatem Barcinonie. Inde ad gradum fluminis Tortose ciuitatis in africo, que omnia continent ml.??
A capite Crucis quod respicit in eurum super insulam Minoricam ml x uoluitur portus Cadacheri.
Inde ad Mete de Ampuri ml xx cuius sinus habet in capite insulas tres paraus.
Ab Ampuri ad insulam Finolieram, x.
Inde sunt montes Aque Frigide usque ad Turres Donarum ml xv.
Per riueriam ad Sanctum Felicem xv., habens ante insulam cui iacet in austro in transretu ml cl. Caput septentroniale quod dicitur Promontorium isle Maiorice que dicitur Balearis; caput occidentale quod dicitur Palamiera iacet item in austro per ml cl. Tramarici et Terracone subscripte.
A Sancto Felice usque ad Brandam iii.
ad Sanctum  Paulum xxx.
Ad flumen et ciuitatem Barcinonie xxx., cuius deprome miliaria I iacet Mons Iudeus.

Thus we read of other place names, some more important than those used in “Lo Conpasso”, but substantially the text although reversed is similar.

THE PELEIO ROUTES OF C MILLARA MINIMUM ARE NOW ILLUSTRATED.

Having indicated the basic methodology of “Lo Compasso de Navegare” in its detailed coastal sections, I now turn my attention to the pelagic routes described. Many sections are headed e.g. Peleio de la isola de Marsellia (folio 8v) and thus can be the subject
of singular maps. Some however, which are scattered throughout the text and diagrams are thus added where appropriate. An example is already quoted in the early folios 1r to 8v.

Peleio de Capo de Pali, Folio 5r
1) De lo dicto capo de Pali a lo dicto capo de gata CLXX millara per garbino

2) De lo dicto capo de gata entro a lo monte Gibeltari, CCC millara, per garbino ver lo ponente terza vento; e cosi sono CCCCL millara de Septa entro a capo de Pali.

As these and the following five pelagic routes have already been dealt with above I will not comment further, but include them for reference purposes.

3) De lo dicto capo d’Acqua frecda a lo capo de Linzolo de Marsellia, CLXXX millara per Greco. Folio 6v.

4) De ra dicta Acqua morte entre Acque frecde CXXXV millara per mezzo di e garbino

5) Ancora d’Acque Morte entro Menorica CCLXX millara per mezzo di ver lo silocco um poco,

6) De le dicte Acque morte all’isola de Maiorica CCC millara per mezzo di ver garbino poco.

7) Ancora da Acque morte all’isola de San Piero CCCCLXX millara per sirocco ver lo mezzo di paoco. These are from folios 7r and 7v.

Peleio de la isola de Marsellia, Folio 8v.  
Diagram ChLCN/1/D05
1) De la dicta isola de Marsellia a capo de Croce a CLX millara per garbino ver lo ponente quarta de vento. This is an excellent distance and direction for accuracy.
2) De Marsellia ad Acqua frecda a CLXXXV millara per garbino ver mezzo di pauco. The distance is accurate but the direction should be G5P not G5M.

3) De la dicta Marsellia all’isola de Menorica CCC millara specialmente a lo capo de Maone, per mezzo di ver lo garbino quarta.
4) E se volete gire a lo frieo enter Maiorica e Menorica, va enter mezzo di et garbino et a CCCXL millara. These are excellent distances and directions as the diagram illustrates.
5) Ancora da Marsellia entro all’isola de san Piero CCCCL millara per sirocco terza ver mezzo di. There is a slight over length from CCCCL m given to CCCCCXV m actual, but the direction is quite correct. That is 35m in 450m and less than 8% error. I think it is reasonable and have thus chosen to accept this and similar small changes, although I do note them.
6) Da Marsellia a le Penne de Santo Eramo CCCL millara per silocco. As with the previous distance there is an over length this time from CCCL to CCC, but the direction is correct.

1) De Genova all’isola d’Iera CC millara per garbino. Folio 13r. The distance is actually CCL mil but the direction is correct along the coastal route.

1) De capo Colso a lo golfo de Genova CXL millara per tramontana ver lo maestro, Folio 15r. The distance is CXX mil and thus accurate, but T 1/3 M would be a better route.

The following are included in this text for reference purpose only as there are just too many for individual comments to be made.
1) De’stura a capo de Cercelli XX millara per sirocco ver lo mezzo di. Cercelli e capo de Plazza Romana per sirocco. Da questo capo entro a capo de Linar CXL (CXX) millara a maestro et a sirocco. Folio 16r.

1) De Minerba a la bocca del Faro de Messina da tramontana CC(C) millara per sirocco ver meczo di. Folio 16v.

1) De Spartivento al capo de Stillone C millara per Greco ver la tramontana. Folio 17v.

1) De lo monte Sancto Angelo entro a la citta de Fermo CLXXX millara per maestro ver lo ponente. Folio 21v.

1) D’Ancona a Venegia CC millara per maestro ver la tramontana quarta, zoe per pelago. Folio 22v.

Città de Venegia Folio 22v & 23r. Text included merely to illustrate its entirety.

1) De Venegia a pPola CXXX millara per levante ver lo greco. De Pola a capo de Istria che se clama Prementore e so XX millara per lo levante ver lo sirocco.
2) De Monte Gaibo en Ancona CXL millara per mezzo di.
3) De casa ad Ancona CLXX millara per ponente

1) De Duraczo a Brandiczo CXXX millara per garbino. Duraczo e citta et en capo de lo golfo da mezzo di, et e bono porto, che e golfo con basso fondo. E devete onorare la dicta ponta de lo doctor capo II millara, che a secca I millara e mezzo en mare. Folio 23v.
2) De la dicta Sazena a Brandiczo C millara per ponente ver lo maestro pauco. Folio 24r.

1) De la dicta Morea a Motona C millara per sirocco ver mezzo di terza.
2) De la dicta isola de Jacento a Motone C millara per sirocco ver mezzo di. Folio 26r.

1) Da maina ch’e capo del golfo de Sevarone da sirocco [ a Mallea Mactapane C millara] a Malea Mactapane XXX millara per sirocco ver lo levante.
2) De Motona a mallea Mactapane C millara per sirocco ver lo levante quarta. Folio 27v.

1) de Mallea Mactapane a mallea Sancto Angelo C millara per levante ver lo Greco, e la’ntrata enter l’isola del Cervo e de Cerverigo. Folio 28v.

1) De lo dicto capo de San Georzo a sSalonichi C millara per tramontana. Folio 34v.
2) De lo dicto sanichi a la ponta del golfo da levante C millara per sirocco ver mezzo di.

1) De Constantinopoli a lo capo de la Grega, ch’ede capo de la Bocca d‘Avedo d aver lo ponente CLXX millara per ponente ver lo garbino a golfo lanzato.
2) De Boca d’Avedo a lo capo de Sirofa, ch’ede all’isola de Negrepo da mezzo di ci so CC millara entre mezzo di e garbino. Ed en quella via trvare te una isola, che se clama Sapiro, de la parte de tramontana et e longa XII millara. Folios 35v and 36r.

1) E de questo strecto, entra lo Mare Maiore DCCC millara per Greco ver la tramontana quarta. E de equa entro a lo fondo de lo dicto mare Maiore CC millara per Greco ver lo levante. Folio 36v.
1) Se volete Navegare de mallea sancto Angelo per la Scala ver Negreponte et a Salonichi e Constantinopoli, va per tramontana ver lo Greco, e venirete a lo capo de le Colonne, e so CLXX millara. Folio 42r.

1) De lo dicto castello de Rode all’Isola de le Donne C millara per Levante. Folio 46r.

1) De Accri a Damiata CCC millara per ponente ver lo garbino pauco per peleio. 

1) De Acri en Alexandria per Peleio CCCCLXXX millara per tramontana ver lo maestro. De la dicta Alexandria a lo golfo de Raxeto C millara per garbino ver lo ponente quarta. 
2) De la dicta Alexandria a la Rassa per peleio CLXX millara per ponente. Folio51r.

1) De Bonandrea a Rasausem C millara per ponente. Folio 53r.
2) De Rasausem a Resautino CC millara a levante et a pponente. 
3) De rasausem entro a lo Gozo de creti CLXXX millara per tramontana. 
4) De Rasausem enn’Alexandria DCC millara volgenno lo golfo. E la starea zai de Rasausem en Alexandria per levante, tanto quanto serrete for a en mare sopra Rasausem, cotanto trovarete sopre Alexandria e plui.

1) De Tripoli de Barbaria all’isola de Lampesoda CCC [CCCC] millara per tramontana ver lo maestro. Folio 53r and 54v. 
2) De Tripoli en Malta CCC millara per tramontana
3) De Tripoli all’isola de Gerbi per rstarea CC millara entre maestro e tramontana.

1) De dicta Lampesoda entro Afrega C millara per ponente. Folio 55v and 56r.
2) De lampesoda all’isola de Malta C millara per levante ver lo Greco terza 
3) De la dicta Malta all’isola de Pantalanea CL millara entre ponente e maestro. 
4) De Lampeosa a la Pantalanea C millara per maestro ver la tramontana terza. 
5) De la dista Pantalanea a la dicta Afrega CL millara entre mezzoiono e garbino 
6) De Pantalanea a le secche de Capulia CL millara per mezzo di ver lo garbino quarta.
7) De la Pantalanea a le secche de sancta Patriarea CL millara per mezzo di. 
8) De la Pantalanea a le secche de ro Beto CL millara per mezzo di ver lo sirocco un poco.

1) De la dicta Conia a la Quipia C millara entre maestro e tramontana e plui ver lo maestro. Folio 56v.

1) De Boczea a Giberamellis C millara per Greco 
2) De Giberamellis a la Galeta CC millara entre Greco e levante. Folio 59v.

1) De la dicta isola de li Colombi a Orannao C e XXX millara enter ponente e garbino. Folio 60v.
2) De Minella a Mussema C millara per ponente ver lo maestro. 
3) De Musema entro a la citta de Septa CL millara per ponente ver lo garbino. 
4) De Oranno a Septa per Peleio CCC millara per ponente ver lo garbino terza. Folio 61v.
The preceding texts are but a sample of the various “Peleio” examples to follow. We now read of very detailed distances to all parts of the Mediterranean Sea generally from very specifically located small islands which are on the coasts of the main islands and also the mainland. These are so very significant in their situation as to allow distances to various places to be given without the necessity of sailing out of various ports and the twists and turns there required and offer straight line courses from one to the other.

There are some c300 entries for pelagic routes from particular points in the Mediterranean Sea. The fact that J T Lanman actually ignored most of them is I consider a travesty of research. These are the links which join the whole Mediterranean Sea together.

PELEIO DE CAPO DE PALI, FOLIO 62v and 63r.

1) De capo de Pali a Giberamel, CCCCL millara per Levante ver lo Greco pauco. Nearer 500 mil and Levante ver lo Sirocco pauco. That is slightly south not north.
2) De lo capo a Xafone CCC millara per levante ver lo sirocco pauco e trovareteve alto en mare entorno X millara. Distance is 375 mil or CCCLXXV, but the direction is correct.
3) capo de Pali a Gizera CCLX m per levante ver de sirocco.
Distance is CCLXXX and thus accurate as is the direction given L/S pauco.

4) capo de Pali a Brisca CLXXV m entre levante e silocco.
   Distance is 150 mil and direction is Sirocco 1/3 Meczo.

5) capo de Pali all’isola de Colombi, CL m per silocco ver lo levante quarta.
   Not as yet identified. But there is an island near Arzau which is quite possibly it.

6) capo de Pali a lo capo d’Arzau, CLXX m per mezzo di.
   Distance is CLV and thus correct as is the direction.

7) capo de Pali a Une CCXXXV m entre mezzo di garbino.
   Both distance and direction are correct.

8) capo all’isola de Arborame XL m per silocco.
   There are serious problems with this description. The distance is CCXXX mil and it is Garbino from Capo de Pali. To arrive at the Island of Alboran from the west it is probably a misplaced text and should read perhaps Marica/Malaga CX mil per silocco.

PELEIO DE LO CAPO DE GIRA FOLIO 63r.

1) De lo capo de Gira a Tenese CCLXX millara per levante ver lo Greco quarta.
   Distance is correct but it should be Levante ver lo Silocco quarta.

2) capo de Gira a Oranno CXXXV m enter levante e silocco.
   Distance and direction are correct.

3) capo de Gira a Une CV m entre mezzo di e silocco.
   Distance should be CL, but direction is correct.

4) De Muleca a Oranno CCL m per levante
Distance is correct but direction should be Levante Silocco.

5) *De Maleca a Une CCXXV m per levante*

Distance is CC and direction is Silocco.

6) *De Murcia a Oranno CCXL m per levante.*

Oran is due south of Murcia and thus if it is from the west it is probably Marica/Malaga.

PELEIO DE MALTA FOLIO 63r and 63v. Not detailed on diagrams, info only.
1) *De Malta a sSuecca en Barbaria CCCCL millara entre mezzo di silocco e pui ver lo silocco poc.*
2) Malta a lo golfof de Tino DC m per silocco, zoe a ssavere a la parte da levante.
3) Malta a Rasausem DLXXX m entre levante e silocco
4) Malta a Mallea Mactapane DCLX m per levante lo Greco quarta.
5) De Malta a Motone DC m per levante ver lo Greco terza.
6) De Gozo de Malta all’isola de Ducato DLX m per Greco ver lo levante quarta, e venirete propo de lo capo Passaro entorno X millara alto.
7) Malta a Corfu DXL m per Greco
8) Volze Malta LX millara per estarea.

PELEIO DE SPARTVENTO FOLIO 63v. Not detailed on diagrams, info only.
1) *De Spartivento de Calavria a Mallea Mactapane DXXX millara per levante ver lo silocco poc.*
2) De Spartivento a Motone CCCCXLV millara per levante
3) capo de Spartivento all’isola de Cifalonia CCCL millara entre levante e greco.
4) capo de Spartivento a Curfo CCCXL millara per greco.

PELEIO DE TRIPOLI FOLIO 64r. Not detailed on diagrams, info only.
1) *De Tripoli de Barbaria a Rasausem Dc millara entre greco e levante, e venirete alto a lo capo entorno XX millara *
2) Tripoli a lo Goczo de Creti DCCCCLXX millara per greco ver lo levante terza di vento.
3) De Tripoli all’isola de Sichilo DCCL millara per greco ver lo levante quarta.
4) Tripoli a Mallea Mactapane DCCCL millara per greco ver lo levante quarta.
5) Tripoli a Motone DCCCXXX millara per greco
6) Tripoli all’isola de Cifalonia a lo capo da levante DCCCXL millara per greco ver tramontana quarta.
7) De lo dicto Tripoli all’isola de Tano DCCC millara entre ponente e maestro. En dicto tano e propo dell’isola de Corfu entorno XXX millara entre ponente e maestro.

PELEIO DE RASAUSEM FOLIO 64v. Not detailed on diagrams, info only.
1) *De Rasausem all’isola de Setrile CCCLXX millara entre greco e tramontana et e propo de Mallea Mactapane XX millara.*
2) Da Rasausem a Motone CCCLXXX millara per tramontana ver lo greco poco.
3) De Rasausem a lo fredo de Iacento e de Cifalonia DCLXXX millara entre maestro e tramontana.
4) De Rasausem a lo fredo de Tino e lo capo de Lequie DCLXXX millara entre maestro e tramontana. Lo dicto capo de Lequie e l’isola de Teno e capo de lo golfo de Venegia.
5) De lo dicto Teno che e en bocca de lo golfo de Venegia entro a lo fondo de lo golfo
1) Porta d’Evinza a la Cantara CXXX millara per garbino ver lo ponente terza.
2) *Porta d’Evinza a lo capo de Pali CLXXX millara per garbino ver lo mezzo di poco.* Distance is correct but direction should be Garbino ver lo Ponente quarta.
3) *De capo de Pali a la Formentiera CLXXX millara per greco.* Distance is correct direction should be greco ver lo levante terza.
4) *De Formentiera a Orrano CCCXXX millara per garbino ver lo mezzo di.* Distance should be CC and direction Garbino ver Meczo terza.
5) *E de lo capo de Mola a Tennese CC millara per mezzo di.* As has been shown previously this should be part of the following Peleio. Both distance and direction are however correct.

Note, The following capo de Mola is in fact eastern Formentiera.

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DCCCLXX millara per maestro ver la tramontana quarta.
6) De Rasausem a Cotrone che e da garbino a capo de lo golfo de Taranto per XX millara a DCL millara per maestro ver la tramontana quarta.
7) De Rasausem a lo capo de le Colonne e Calavria DCL millara per maestro ver la tramontana.
8) De Rasausem a Spartivento e calavria DLX millara per maestro.
1) capo de la Mola a lo Boctaro CLXXXX millara enter mezzo di e sirocco.
Both distance and direction are correct.
2) capo de Mola a Zizera CC millara per silocco ver mezzo di poco.
Both distance and direction are correct.

3) capo de Mola a Berengueret CCXXV millara per silocco.
Both distance and direction are correct.
4) Mola a Zaffon CCX millara per silocco ver lo levants poco.
Both distance and direction are correct.
5) capo de la Mola a Gibaremel CCCXX millara per levante ver lo silocco terza.
Distance is CCCLXXX with direction correct.
6) capo de la Mola all’isola di Sam Piero CCCCL millara per levante ver lo greco quarta.
Both distance and direction are acceptable, CCCCLXX and L/G1/8th.
7) capo de la Mola a lo capo de Sancto Marco, che e en l’isola de Sardegna CCCCL millara per levante ver lo greco terza.
Distance is CCCCXXC with direction as given is correct. (simple copy error??)
8) capo de Mola a le Penne de Sant’Eramo CCCCLXXXX millara entre greco e levante, e pliu ver lo greco.
Distance given is correct and direction need only be Greco/Levante.
9) capo de Mola a l’Azemara DXX per greco ver lo levante terza.
Distance is correct and direction need only be Greco/Levante.
10) capo de Mola a la Grappalolia C millara per greco.
Distance is CXX and Greco/Levante.
11) capo de la Mola a la citta de Maiorica CXV millara per greco ver tramontana terza.
12) capo de Mola all’isola de Tago Mago XL millara per tramontara ver lo maestro quarta.

PELEIO DE TAGO MAGO FOLIO 66r. This is Evinca (IBIZA) by another name.
1) Tago Mago all’isola de la Pamiera LXX millara per greco ver tramontana terza
2) capo de Tago Mago a Barsellona CCXXV millara per tramontana
3) Tago mago a sSalo CLXXXX millara per tramontana ver lo maestro terza.
4) Tago mago a Tortosa CLX millara per maestro ver tramontana quarta.
5) Tago Mago entre a la foce de Valenza XXX millara per ponente ver lo garbino poco.
6) Volge l’isola d’Evinza CXXX millara.

PELEIO DELL’ISOLA DE GRAPAROLA FOLIO 67v. Diagram ChLCN/1/D08
1) Graparola a Orrano CCCCX millara per garbino ver lo mezzo di terza.
Distance is CCCCX, but direction is Greco.
2) Graparola a Tennese CCLXXXX millara per mezzo zorno ver lo garbino terza.
Distance is CCLXV, but direction is Meczo/Garbino.
3) Grapparola a ro Batal CCL millara per mezzo di ver lo garbino pauco.
4) Grapparola a Tedelise CCXLV millara enter mezzo di e silocco.
Distance is CCLXV, direction Mezzo ver lo garbino terza.
5) Grapparola a Jafone CCLX millara per silocco ver mezzo di terza.
Distance is CCXXX, direction Meczo ver lo silocco.
6) Grapparola a Giberamelle CCLXXX millara per silocco ver lo levante quarta.
   Distance is CCCX, per silocco.
7) Grapparola a Bona CCCXL millara enter levante e silicco poco ver lo silicco.
   Distance is CCCC per silocco ver lo levant terza.

8) Grapparola all’isola de la Galeta CCCCC millara per levante ver lo silocco terza.
    Distance is CCCCL, direction silocco verlo levante terza.
9) Grapparola all’isola de San Piero CCCLX millara per levante.
    Distance is CCCLXX and direction is Levante ver lo silocco quarta.
10) Grapparola a lo capo de Santo Marco CCCLXX millara per levante ver lo greco quarta.
    Distance CCCLXX and direction is Levante.
11) Grapparola a le Penne de Sant’Eramo CCCLXXX millara entre levante e greco poco ver lo levante.
    Distance is correct, but direction is Levants ver lo greco octavo.
12) Grapparola al’isola de l’Azenara CCCCC millara entre greco e levante e poco plui ver lo greco.
    Distance is correct, but direction greco ver lo levante.
13) Grapparola a lo capo de Maone, ch’è en l’isola de Menorica C millara per greco.

PELEIO DE PALOMIERA FOLIO 68r.
1) isola de Palomiera a capo de Martina CLXXX millara per garbino ver lo meczzo di poco.
2) Palomera a la foce de la cita de Valenza CLXX millara enter ponente e garbino.
3) Palomera a Tortosa CXL millara per maestro ver lo ponente quarta.
4) Palomera a Salo CXXX millara per maestro ver lo tramontana terza.
5) Palomera a Barcelon a CLX millara per tramontana ver lo maestro poco.

PELEIO DE CAPO DE PREMONTORE FOLIO 68r and 68v
1) De lo capo de Premontore a salo CXXX millara per maestro ver lo ponente quarta.
2) De capo de Premontora a Barsellona CXXV millara per tramontana ver lo maestro poco.
3) capo de Premontore a lo capo d’Acqua frecda CLX millara per tramontana.
4) capo de Premontore ad Aqua morte CCCX millara per tramontana ver lo greco terza.
5) Premontore a Marsellia CCCXL millara entre greco e tramontana paoco plui ver lo greco.
6) capo de Artano a la bocca dell’isola de Iera da ponente CCCLX millara per greco ver
tramontana quarta.
7) capo de Artano a CEttadelia de Menerica XXXX millara per entro greco levante e levante.
8) Volze Maiorica CCX millara per estarea.

PELEIO DE CITTADELLA FOLIO 69r
Diagram ChLCN/1/D07
1) Cittadella a Salo CLX millara per maestro ver lo ponente.
Distance is CC mil and direction maestro ver ponente terza
2) capo de Cittadella a lo capo d’Acqua frecda CXL millara per tramontana ver lo maestro
terza. Distance is CLXXV and direction tramontana ver maestro terza. Very good for both.
3) De lo capo de Fornelli en Acquemorte CCLXXXV millara per tramontana.
Distance is CCCX and direction tramontana. An excellent peleio route.4) De lo capo de
Cittadella a Marsellia CCCXXX millara per tramontana ver lo greco terza.
Distance is CCCXV and direction tramontana ver greco terza. An excellent peleio route.
5) Cittadella a la bocca dell’isole d’Iera d aver lo ponente CCCXXX millara per greco ver lo
tramontana terza. Distance is CCCXV and direction greco ver tramontana terza. Excellent.

PELEIO DE LA CAPO DE MAONE FOLIO 69v
Diagram ChLCN/1/D07
1) De lo capo de Maone a capo Corso CCCCLXX millara per Greco
Distance CCCCLXL, direction greco. An excellent peleio route.
2) capo de Maone a lo Monte de Sagra CCCLXX millara per Greco ver lo Levante octava de
vene. Distance CCCCLX, direction greco ver levante terza. An excellent peleio route.
3) capo de Maone a Sanguenara CCCL millara per Greco ver lo Levante quarta.
Distance CCCL, direction greco ver levante quarta. Quite perfect.
4) capo de Maone a la porto de Bonifacio CCCLXXV millara enter Greco e Levante, e plu
ver lo Greco paoco. Distance CCCLX, direction greco ver levante e greco poco. Excellent.
5) capo de Maone a l’Azenara CCCXV millara per Levante ver lo Silocco quarta.
Distance CCXC, direction greco ver levante. Distance OK, direction avry.6) capo de Maone
a le Penne de Sant’Eramo CCC millara per Levante enver lo Greco terza
Distance CCLXXV, direction levante ver greco terza. Good peleio routing.
7) Capo de Maone all’isola de Sam Piero CCC m per Levante.
Distance CCLXXXV, direction levante ver silocco quarta.
8) Capo de Maone al capo de Sam Marco CCXCV m per Levante
Distance CCLXXXV, direction levante.
It is possible the distance data for these two routes has been interchanged.
9) Capo de Maone a La Galeta CCCLXXV m per Silocco ver lo levante terza. 
Distance CCCXC, direction silocco ver levante terza.

10) capo de Maone a Bona CCCXL m per Silocco ver lo levante poco. 
Distance CCLXL, direction silocco. Good peleio routing.

11) Capo de Maone a la Preta dell’Arabo CCCXC m per Silocco ver mezzo de poco. 
Distance CCCXXX, direction silocco ver mezzo de poco. Good Peleio routing.

12) capo de maone a Giberamel CCXC m per Silocco ver mezzo di quarta. 
Distance CCC, direction silocco ver mezzo quarta. Excellent route for peleio.

13) Capo de maone a Boczea CCCXX m per mezzo ver lo Silocco terza. 
Distance CCXC, direction Meczo ver silocco terza. Good peleio routing.

14) Capo de Maone a Zaffone CCC m per mezzo ver lo Silocco pauco. 
Distance CCLXX, direction mezzo.

15) capo de Maone a Mectisuso CCC m per mezzo giorno. 
Distance CCXC, direction mezzo ver garbino terza.

16) capo de Maone a Tennese CCCLXXV m enter mezzo giorno e garbino. 
Distance CCCLXXV, direction garbino ver mezzo terza. Good peleio routing.

PELEIO DE SAN PIERO FOLIO 75v

Diagram ChL.CN/1/D09

1) Isola de Sancto Piero a lo capo de Rassagibel CLXX m per Silocco ver levante poco.
Distance, CCX, direction correct.
2) Sam Piero a lo capo de Bizerto CXL m per silocco
   Distance CXL, direction silocco ver mezzo un poco.
3) Sancto Piero all’isola de Galeta C m per silocco.
   Distance CL, direction mezzo ver silocco.

4) San Piero a la citta de Bona em Barbaria CL m per mezzo de ver lo garbino terza.
   Distance CCX, direction correct.
5) Sancto Piero a lo capo de Giberamello CCXX m per garbino ver lo mezzo di pauco.
   Both distance and direction are correct.
6) Sam Piero a Bozea CCCXX m per garbino.
   Both distance and direction are correct.
7) Sancto Piero a la Grapparola CCCLX m per garbino ver lo ponente paoco.
   This item is certainly miscopied in the general order of starting in the southeast and travelling
   clockwise. The distance is correct but the direction is ponente.
8) Sam Piero a Tedelise CCCLX m per garbino ver lo ponente paoco.
   Distance is CCCLXX, direction is garbino ver ponente terza.
9) Sam Piero a Zizera CCCC per garbino ver lo ponente quarta.
   Distance is CCCXXV, direction g/p.
10) Sam Piero a capo de Pali DCX m per ponente ver lo garbino quarta.
    Distance is DCL, but direction is correct.
   This is where the S Piero/Grapparaola text should be inserted.
11) Sam Piero a lo capo de Maone CCC m per ponente ver lo maestro quarta.
    Distance is CCLXXX, direction is correct.
12) San Piero a Barzellona CCCCCLX m entre ponente e maestro.
    Both distance and direction are correct.
13) Sancto Piero a lo capo d’Acqua fredda CCCCXL m per maestro ver lo ponente entorno
    terza de vento. Distance is CCCXXV, but direction is correct.
14) San Piero a lo grado d’Ade D m per maestro.
    Both distance and direction are correct.
15) San Piero entro all’Acque morte CCCCCLXXX m per maestro ver tramontana paoco.
    Both distance and direction are correct.
16) San Piero entro a Marsellia CCCCCL m per maestro ver la tramontana terza.
    Distance is CCCCXX and direction is correct.
17) San Piero all’isole d’Jera CCCCCCLXXX enter maestro e tramontana.
    Both distance and direction are correct.
18) San Piero a lo porto d’Olivoli CCCCXL m per tramontana ver lo maestro quarta.
    Distance is CCCXX, direction is correct.

LA BOCCA DE CARBONARA FOLIO 76v
1) Bocca de carbonara a la Guardia de Bezerto da ver ponente CXX millara per mezzo di.
   Distance CLXV, direction correct.
2) Carbonara a Rassagibele CXL m enter mezzo e silocco e plui ver lo mezzo iorno.
   Distance CLXV, direction correct.
3) Carbonara a lo capo Bono CLXX m per silocco ver lo mezzo di pauc. 
Distance CCXX, direction silocco ver mezzo terza.
4) Carbonara zoe a ddir de la facza de tramontana all’isola de la Patanlanea CCXX m per silocco ver lo levante quarta. Distance CCLXXV, direction silocco.
5) Carbonara all’isola de Maremma CLXX m per lo levante ver lo silocco terza. 
Distance CC, direction silocco ver levante terza.

6) Carbobara a Salerno CCCCLXXX m per Greco ver lo levante quarta. 
Distance CCCCLXXXV and direction is correct.
7) Carbonara a lo monte de Cercelli CCCLXX m per Greco. 
Distance is CCC, direction greco ver levante poco.

CONCLUSIONS
Part one, coastal data
This text has set down the actuality of” Lo Conpasso de Navegare” , its content as read; illustrated the many foibles and complete inaccuracies within it and concludes by rejecting practically all of J T Lanman’s assertions regarding its possible usage for drawing an accurate Portolan Chart using the coastal data there-in. It also concludes that there has been a serious misunderstanding of the text, particularly the directional data and what instructions such as “Levante verso Greco” can mean, and it is certainly not just EastNorthEast. It also shows that there was no magnetic declination used at all, and in fact the pelagic routes indicate an excellent correspondence to the correct directions and distances involved.

It must however be clearly stated that it appears J T Lanman was blissfully unaware that the text by B R Motzo had serious flaws of transcription as have been pointed out in 1995 by Professor P Gautier Dalche, and in 2011 by Dr Alessandra Debanne . The result of these is to negate sections of the plot he has made and thus the overall drawing of his chart.

Finally the fact that J T Lanman chose to completely ignore many pelagic routes given in “Lo Conpasso” even though his 4th conclusion states that the reason for the charts was to assist pelagic sailing, I find unacceptable as they point to precisely that. Had they been used the errors of the coastal sailing data would have become self evident.

Having followed the text paragraph by paragraph and plotted the distance and bearing instructions given, I have concluded that there are far too many simple errors for this coastal text to be considered a description of coastal sailing around the Mediterranean Sea basin which could be used to construct a chart.

However if we ignore the obvious errors that have been shown to exist and accept the basic premise of the text, it was possible to rationalize the data as acceptable. But that requires a great leap of faith in and of the original text this copy was taken from.

CONCLUSIONS REGARDING THE TEXT OF LO CONPASSO DE NAVEGARE
Firstly, if the text is as clearly stated for coastal sailing and thus an aid to mariner’s then it’s possible usage must be analysed against the coastline. Prior to these texts mariner’s knew their coastlines, very few sailed out of sight of land and as they sailed at a sedentary pace the coast and hazards were carefully observed. Thus it is easy to consider these texts as no more than shorthand guides, not definitive directionally or precise to a millara or two.
The knowledge of the mariner was obviously used to translate the shorthand methodology used in the text layout. Thus, how much is “um poco”, when in the text we read, “octavo vente” which is c5 degrees, an eighth of 45 degrees, then quarta or c11 degrees, then terza c15 degrees. Thus “um poco” would indicate that mariners were able to differentiate from 0 to 5 degrees, or just understood how to keep the ship’s bow slightly askew of a compass point as we know it.

Secondly, as has been shown directions given also vary, sometimes noted as “Greco ver lo Levante” and sometimes as “Greco e Levante”. Thus with those already mentioned we have at least 6 variations, “poco”, “octavo”, “quarta”, “terza”, “ver lo” and “e”. The only determinant for each is the physical coastline on the section described.

Therefore, “Greco towards Levante” is exactly what? But, “Greco e Levante” is easier as it obviously refers to sailing Greco and then Levante to follow the coastline.

Thus you cannot anticipate a direction to draw a line on a map neither do you know the division of the distance for “Greco e Levante”, unless you know the coastline intimately.

I must therefore conclude that these are shorthand sailing directions along a coastline which is visible and thus known to the mariner’s. Alone, the coastal sailing data will not permit a map or chart with any accuracy to be drawn.

**Part two, Peleio sailing data**
However, the Peleio information is of a different nature: It is largely correct for distance and direction, which is very surprising when we are quite often dealing with distances of 400 millara, some 500Km across open Sea. How it was achieved is another question.

Thus there is a dichotomy within “Lo Conpasso de Navegare”; coastal sailing errors abound when they should be simply stated and accurate: Long distance sailing across the Mediterranean Sea where major errors would be expected are surprisingly accurate.

I therefore conclude that for unknown reasons the coastal sailing data has been badly copied and probably corrupted and therefore unlikely to yield sufficiently good information to construct a chart. However I conclude the Peleio data is accurate and could possibly have been used to construct a chart. But that chart would not have had any magnetic declination and would have been akin to a geographical chart as it uses actual distance/direction.

But of course this is not what J T Lanman did and therefore I must dismiss his evidence and present my own construction.

**POSTSCRIPT: CAN THE PELEIO DATA PROVIDE ENOUGH ACCURATE INFORMATION TO ENABLE THE BASIC CHART TO BE SET OUT.**

This is a speculative idea which was formulated many years ago and is the reasoning behind my previous texts regarding the “Map within the Portolan Chart”. As I read and researched the 4 texts mentioned previously, which have finally all been available since 2011 (for the A Debanne text) this paper has been in my to do list. The methodology I am about to explain in a few words is entirely feasible but requires foresight and aptitude to know that the Peleio distance/bearing data will yield this map.

**HOW TO DRAW A CHART USING THE DATA IN “LO CONPASSO DE NAVEGARE”**
Diagram ChLCN/1/D10 provides sufficient data to comprehend the basic idea.

From within “Lo Conpasso de Navegare” it was necessary to determine node points from which all else could be set out. Those node points must be geographically accurate enough to allow distances and bearings to be taken from them. They must also be located such that they are capable of being used to construct lines to any point of the compass, and for extensive distances in the Mediterranean Sea.

The islands of Corsica and Sardinia are described well enough when set against a geographical map to be capable of fulfilling those requirements. Thus the node points from the text for these islands were set down on a plain sheet of paper. Obviously there was no coastline, they just formed two shapes akin to rectangles set one atop the other, and were a series of dots or crosses.

Thus I had an accurate (relatively speaking) starting point to evaluate the whole western Mediterranean Sea. Using the Peleio distance /directions from the various node points on the two isles I am able by using compasses, protractor for bearings and a straight edge for distance measure to mark a series of dots or crosses representing the coastal features of Spain, France, Italy and North Africa. But importantly the various Peleio gave distance and direction measures to the same coastal features and thus by a simple triangulation I could pinpoint the actual locations of those coastal features using the compasses.

Therefore at the end of the exercise I had dozens and dozens of node points, coastal positions including the extra islands such as the Balearics for the western Mediterranean Sea.
From here the competent cartographer could infill the coastline between these node points, concoct a shape, quite often just abstract curves and finish with a chart of the western Mediterranean Sea which will be geographical in its basis. The distances vis a vis the node points could be checked by the coastal data given in “Lo Conpasso de Navegare”, but it would also then show just how inaccurate the coastal data was by the Peleio positioning as now recorded. Originally the uncorrupted data may have proven the plot decisively.

**FINAL COMMENTS**

Thus from a conclusion gained using just the coastal sailing data, that a chart could not be drawn, through an evaluation of the whole text and particularly the Peleio sections it is possible to construct a series of node points representing coastal features from which an actual coastline can then be constructed. We have moved from negative to positive.

Speculative this idea certainly is: the cartographers of c1300AD were certainly capable of carrying out this procedure and thus I am happy to set it down on paper for future discussion. But I consider the original map/chart to be the product of a monastic establishment in northern Italy, where the data for “Lo Conpasso de Navegare” was probably collated and the time could be spent gradually piecing together the Peleio information. This would be akin to the situation in Sicily c1150 when Al-Idrisi formulated his text and maps. It would have been a very slow laborious business suited to monastic life and not the world where the necessity to earn a living was paramount. Thus I finally comment that the monastic map was copied and circulated to form the basis of the Portolan Charts, and when the magnetic declination problem occurred the map was merely slewed on the Wind Rose which would originally have been as geographical as the map. Thus it is possible also that Giovanni Mauro di Carignano, a cleric in Genoa, knowing of the original “monastic” map decided that he could emulate the monastic community and produce a fine specimen of a Portolan chart.

Query; is this why I have found only a single chart, Riccardiana ms 3827 which could be considered the template for all others, because the task was quite awesome in 1300AD and only a single copy of that original chart was available for outside use.

M J FERRAR, September 2015.