Cotton&Strasbourg-comparison

Kurt Guckelsberger

Abstract

A case is made that two of the seven “Grandi carte Italie” of the early fifteenth century, proposed as a subgenre of historical maps by Marica Milanesi[1] in her talk in 2006, are evolved from a common but unknown source document or “ancestor”. Indeed, the map known as the Cotton Roll XIII.44 now in the British Library[2] (henceforth the “Cotton”) and the manuscript ms1816 at the Library of the University of Strasbourg (henceforth Strasbourg) share a large part of its toponyms, rivers, size and general layout characteristics.

Introduction

Although Strasbourg covers the peninsula only down to Rome, both objects share an outline of Italy clearly derived from maritime charts (Portolan) with a rich and precisely (enough) located interior complement of cities. Thus they uniquely combine the outlines of a maritime chart with the content of a truly land-based map. This distinguishes them clearly from the numerous maps created from the 1460ies on which used the outlines of Italy as described by Ptolemy in the third book of his *Geography.* This fundamental change in 15th century cartography is deeply rooted in the work of Donnus Nicolaus Germanus, a German monk arriving in Florence in the 1460ies.[3] In his (and others') so-called tabulae modernae, they interpolated between known ancient sites many new cities unknown in Antiquity. Prior to this shift, early humanists apparently completely ignored the first book where Ptolemy explains how to properly project the spherical coordinates of a spherical Earth onto a flat surface with minimal distortions. Early 15th century cartography is generally associated with Venetian craftsmanship in providing increasingly reliable maps for religious, economic and military enterprises. They were soon augmented by works of mapmakers based in Genoa, Mallorca and other predominantly maritime communities. Collectively known as Portolan Charts, the genre survived to nearly 400 years of continuity. Relying predominantly on shorelines and associated settlements and river-mouths, they rarely showed cities of the interior. Hence, maps of whole countries were thought to be missing from the record. In his extremely influential *History of Cartography*, written in 1987, P.A.D. Harvey writes in Chapter 20 p 464, that

> A very few are maps of entire countries: the maps of Palestine, the Matthew Paris and Gough maps of Britain, the maps of Germany and central Europe by Nicolas of Cusa and Erhard Etzlaub. But most are maps of small areas:

and lists in his Appendix 20.1 on page 498 only 8 regional maps of Italy, without mentioning both our maps. On page 481 after discussing Paolino Venetos map of Italy of ca 1340, with few toponyms, he continues

> […] it is not until the fifteenth century that we find further detailed maps of the whole of Italy. Two seem to be unique productions, but five others form a single series of closely related maps from which further maps were indeed derived in the early sixteenth century. Three of the five occur in copies of Ptolemy's *Geography* [...],

By leaving out all details, it might be that these “obscure” specimen refer indeed to our maps. Later, Milanesi[4] suggested in 2006 a generic name, the “Grandi carte Italie” simply due to their large size. They are usually at least 110cm high and designed to a ratio around 1:1.8 – 1:2 for the size of the peninsula, measured between Nice and Pola horizontally and the Simplon Pass to Cape Leuca at the

1 Milanesi, M., Antico e moderno nella cartografa umanistica: le grandi carte d’Italia nel Quattrocentro Geographia Antiqua, 20 (2007-08), 153-76. First reported in 2006 in a conference in Perugia. *(Atti del IV Seminario di Geographia Antiqua), Perugia 2006, "Geographia antiqua" XIV- XVI (2008)*

2 Named after the map collector Sir Robert Bruce Cotton (b. 1571, d. 1631), 1st baronet, antiquary and politician

3 https://www.deutsche-biographie.de/sfz72061.html (Accessed 2018-09-19)

4 n 1

southern end. This is comparable to the ratio of 1:1.9 of a modern flat map. According to Milanesi, these seven maps had a distinct purpose: displayed in antechambers of princely places they had to demonstrate the mastery of territory (or whatever signals to the audience) of the prince; or magistrate in the case of Venice. Only these seven specimen have survived.

Considering this “natural habitat” of such maps, our two maps form an unlikely combination. The Cotton is a spectacular display, probably a present to the English king sometime in the 15th century. More than 1200 toponyms, 64 river systems and carefully crafted miniature vignettes characterise this outstanding witness of terrestrial cartography. By displaying subtle rank signals instead of brutal size signals of the powers that be, by ignoring political boundaries and remarkably precise scale – albeit with shifting magnitude – it is a unique early “topographic” enterprise.

A brief description

Every image, painting or map, “speaks a language” to communicate with its readers or audience.

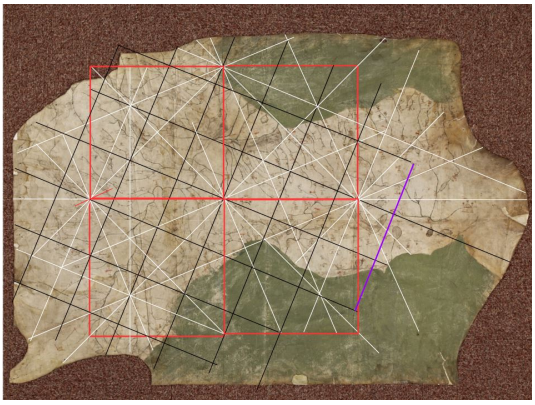
The Cotton consists of an elaborate headline “Italie provincie modernus situs”, a laudatory text describing the historic excellence of the land and the map. The image of the peninsula is surrounded by beautifully executed sea creatures and maritime scenes of all sorts. The islands and adjacent countries are only presented by a number of round medallions signalling their presence.

(Cotton-c07168-08&umriss-300dpi-screenshot)

(ms1816-ganz-screenshot)

With gold lettering on lapis lazuli colour, the Cotton exudes power, confidence and aesthetic ambition.

In contrast, Strasbourg presents a grim image. The raw outlines of the animal's hide as is without a frame suffice. A faded dark green sloppily applied wash represents the Adriatic and Tyrrhenian Seas and there are no embellishments at all. The Strasbourg presents the image of a technical sketch, a



work in progress: tiny crenelated vignettes signal the presence of cities. A few important ones are marked in red, Rome is black. Thin black lines, retraced by a slightly broader green line represent rivers and lake rims; lake surfaces are washed in light grey. This impression is reinforced by a unique feature: superimposed on the map are three primary, equally spaced land-based 16-fold 'wind-roses' near Arezzo, Roteglia and Lecco with additional incomplete centres off-shore from Venice, Genua and others. A set of quadratic cells complete the setup. This suggests that a technique of relative distance and direction developed for nautical charts was adapted for inland “navigation”. This subject is complex historical cartography and therefore excluded from the present study. Overall, to us today it speaks the language of a technical sketch. Modern geographers speak of a “brouillon” (french for rough sketch but carrying the important numbers for distance and direction) brought back from fieldwork to be cleaned up in the laboratory.

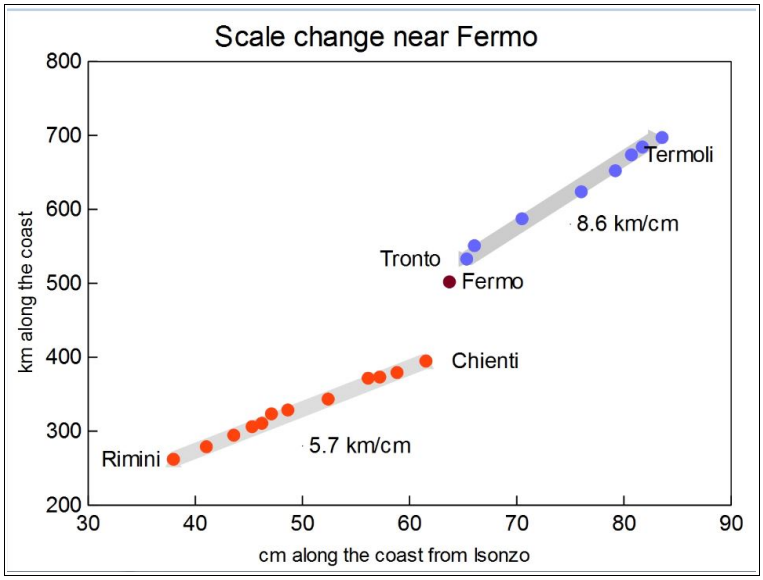
Paraphrasing an earlier study by Grenacher[5], time has treated Strasbourg not kindly: the outline is mutilated because someone cut off some corners on both sides at the bottom. Crude nail holes at the periphery show unsophisticated treatment, water damage and mould renders many names difficult or impossible to read. Very little is known about its origins.it was probably purchased (after 1883) from the estate of Karl Witte (Halle), renowned founder of the German Dante Society and translator who spent many years in Italy. Possibly he was in search of Biondos map... Characteristics of script and toponyms place it in Italy early 1400s. Not much else.

The Strasbourg shares with the Cotton a flat hierarchy of small differences in the aspects of vignettes for ordinary and important cities: the more important ones are only somewhat larger and slightly more elaborite. This might indicate a similar restraint on their common source (or mutual copy past).Now, The Cotton has the complete peninsula and is of superior manufacture. So, where was the lower half, basically the territory of the Kingdom of Naples? The author of the Cotton had it and completed the map. In his rendition, the southernmost point Cape Spartel is exactly at twice the distance from the bottom, namely 130 cm. Hence, the dividing line (and Rome) is (all considered) the image ofthepeninsula into 2 equal pieces.

The river Tronto forms, in a certain sense, on both maps,the frontier between Northern and Southern Italy. In the Middle Ages, it was the southern border of the northernmost province of Norman reign, the Marca di Ancona and the Duchy of Abruzzo, parts of the Kingdom of Sicily until the 19th

5 Grenacher, Franz: Die vermutlich älteste Karte mit Darstellungen von Teilen des Tessins, Jahresbericht der Geographischen Gesellschaft von Bern. 39 (1948) Persistenter Link: http://doi.org/10.5169/seals-323083 (accessed 2018-09-18)

century. It is easy to demonstrate a sudden shift in scale on the Cotton useing the locations of 21 river mouths in to the Adriatic south of Rimini. On these rocky shores, movement of estuaries do not happen in contrast to swampy areas.



(Scale-change-nofit-300dpi-screenshot)

Down to the river Chienti, a scale of ~1:600.000[6] (= 6km/cm) prevails which characterizes the scale used to design Northern Italy. Then follow three estuaries at an artificially compressed scale until the Tronto from which on further south a scale of ca. ~ 1:900.000 (= 9km/cm) is used until the mouth of the Tiber. This scale-change of the Cotton is unique among contemporary maps. However, it is well-known from maritime charts where some parts, say the Black Sea, have an orientation and size different from the Mediterranean and so on...

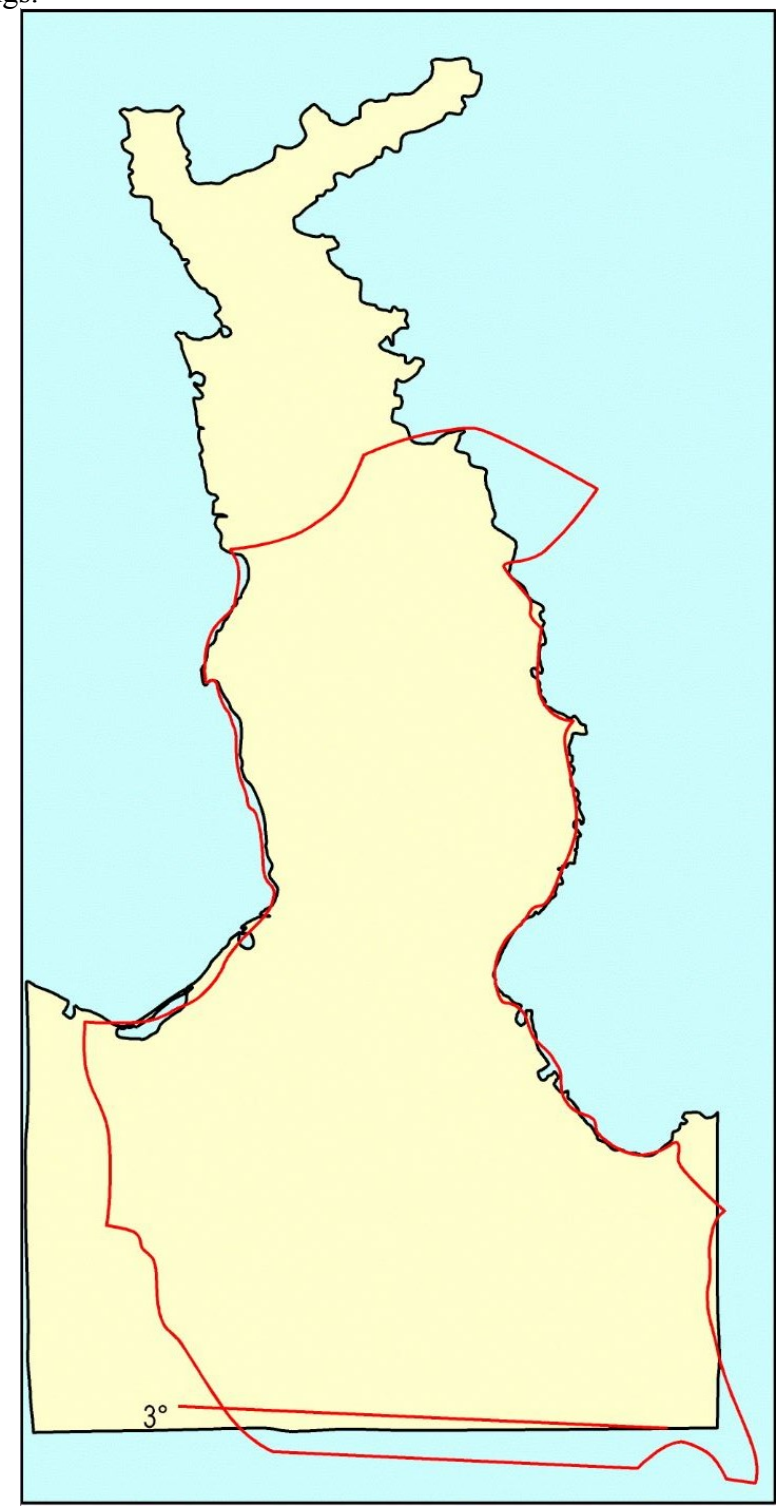
All this happens precisely at half-distance and where the Strasbourg ends and this cannot be an accident. The outline of the Cotton clearly shows this reduction in scale: the southern part of the peninsula is appreciably slimmer than its northern part. Had the mapmaker decided to continue with the 'northern' scale the entire peninsula would have required an additional 33 cm or so, leading to a total height of 170 cm.

As a matter of speculation: in view of the expenses already incurred, another half sheet possibly wouldn't have mattered much. However, given the idea expressed in the text, to unite Italy under the leadership of Venice (ref) it perhaps come in handy that the Kingdom of Naples was expertly “shrunk”.

6 By its very nature, the statistical numbers come of course with substantial uncertainties. So it is reasonable to argue in rounded numbers.

A visual comparison of the outlines of Italy.

In this section, I show that the two maps are of same size by discussing the outlines of the peninsula. This differentiates the pair from many other "copies" of 15th century maps. To my knowledge there are few – if any – direct copies of 15th century maps. The 38 copies in the Cortona Atlas are re-drawings.[7]



(Superposition-Cotton-Strasbourg-300dpi)

7 Although the so-called Cornaro Atlas contains 38 copies of maritime charts but, according to Campbell, quote "Finally, as it appears that none of the Cornaro charts was, coincidentally, copied from any of the originals that survive, " http://www.maphistory.info/PortolanAttributions.html#cornaro retrived 2018-10-20).

The first sign that both maps share a common data set came from comparing the contours of Italy. Although all maritime charts “look the same” differences in the details abound. This is also true in the case of the Cotton (66.5 x 137 cm with two memb4ranes glued together) and Strasbourg (65 x 95 cm) maps. Shrinkage and warping of animal skins over 600 years are known but difficult to quantify because heavily dependent on largely unknown historic storage conditions. Peter Mesenburg reports warping of 13 cm radius circles on contemporary maritime charts in the fractional millimetre region (personal communication). Shrinkage is of more concern: The Cotton has a 2 mm wide red frame just inside its outer edge. While the upper and lower boundaries are straight within a ± 1 mm margin, the vertical boundaries are warped. The width of the membrane sheet along these red boundaries varies by ± 8 mm, assuming that the fresh document had really parallel boundaries. This number includes of course warping by a (barely noticeable) cushion distortion in the photographs and other errors made during the reproduction process and representing the digital images according to the fiduciary marks. A tendency of more shrinkage towards the upper end is possibly connected to differential drying of the outermost layer(s?). Compared to other similar documents, storage as a roll – hence the superior readability – and careful general handling seems to have prevailed during its lifetime. Inspection of the original may alter slightly some of these numbers.

A superposition of the outlines of the two maps, taken from the best possible size information made available digitally by the British Library and Strasbourg University Library immediately shows the similar size of both maps even if the Strasbourg map covers the peninsula only down to Rome. This suggests that one is the copy of the other with the relationship original/copy an open question. However, the outline of the Strasbourg is much simpler compared to finely detailed inlets and promontories of the Cotton, giving the preference to the Cotton being the original or, at least, a ”higher resolution” copy of a (even more detailed primary) source.

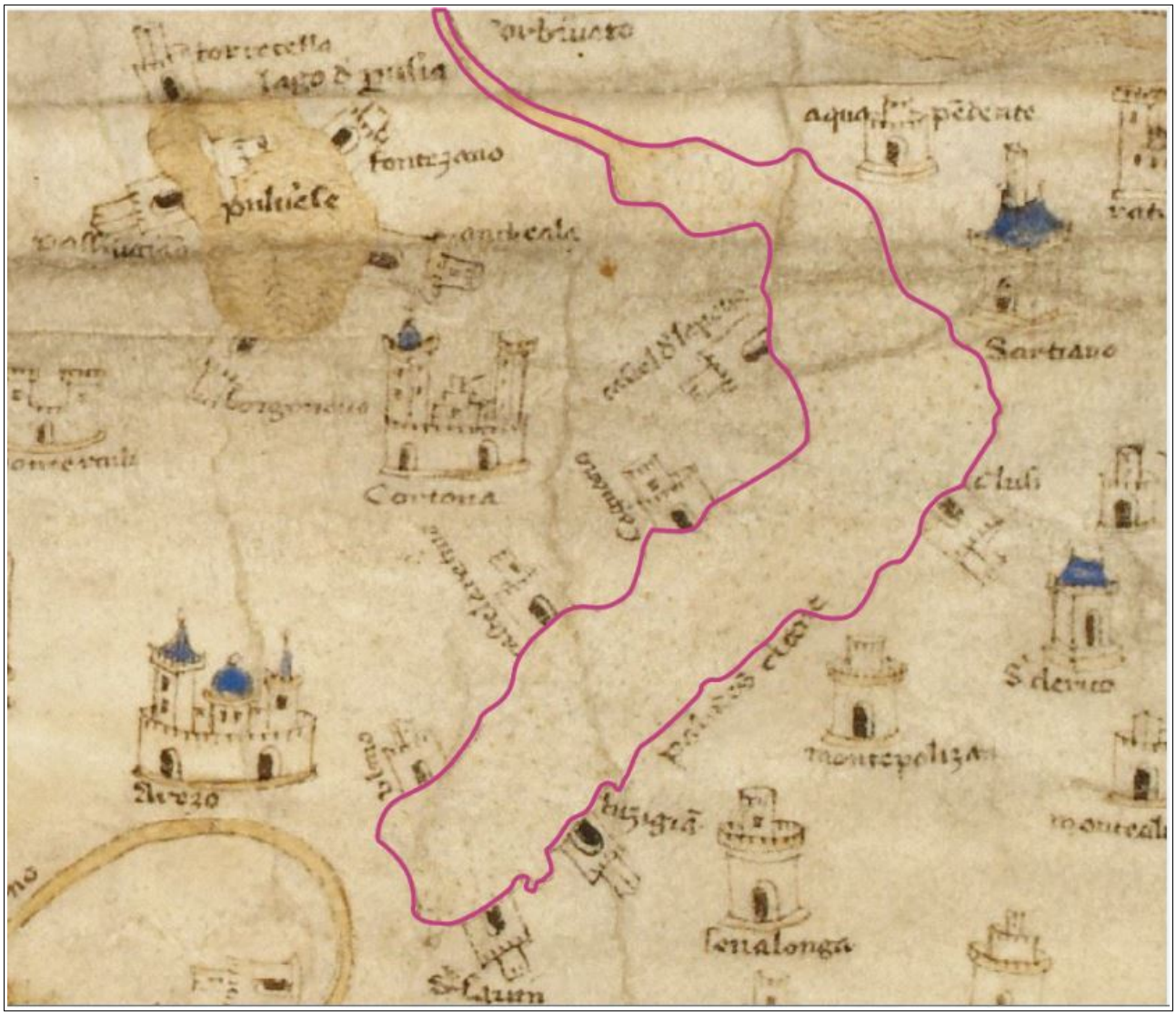
A good match is obtained by rotating the Strasbourg map by 3° clockwise as indicated in the above figure. Remarkably, the remaining maximum differences between the two contours after optimizing their match are of a centimetre or less. Wthe match is almost perfect at the western seaboard from Genua to Latium. The endpoint is an unknown “gulorai” which is on the Cotton the last station before Portu at the mouth of the Tiber. Then follows an unrealistic right-angle trend out to sea. Close inspection reveals that it is a continuation of the coastal trace limiting the grey-green colouring of the sea. This creates an obviously unrealistic bump in the outline of the peninsula. The match is less perfect on the Adriatic side. In the upper Adriatic, there is no trace of the Venetian lagoon, the easternmost readable city is Torcelo and a barely traceable coastline follows until somebody removed a chunk of membrane from the north-eastern corner of the map. On the last three cm or so, beyond Fermo (see below the analysis of the Marca di Ancona), the copyist appease to have simply joined the end of the animal skin with a negligent stroke. Obviously he had reached the neck of the animal skin and was already concentrating on a continuation covering the Angevin territories on a separate sheet?

We have no evidence for such a continuation but a reasonable conjecture for the unfinished appearance of the map on both sides would be that the rectangular part (minus the neck) of the membrane can be estimated as 65 x 80 cm. This would just about cover the carefully copied coastal traces. To conclude, a completion of the Strasbourg map was probably intended.

Hence, both maps cannot be (careful) copies of each other. In the following sections, three separate regional studies looking at extended objects like rivers and lakes and their toponym inventory are presented. The aim is to elucidate what could have happened during the elaboration of the two documents.

The rendering of swamp areas

Beyond pure location, a map, like any painting, uses numerous conventions and symbols to speak to its audience. An intriguing feature of the Cotton map – for its time – is the rendering of swamps[8] with a distinct sigature quite different from the lake surfaces. It is best seen in the valley of the Chiana between Arezzo and Clusi but others exist.



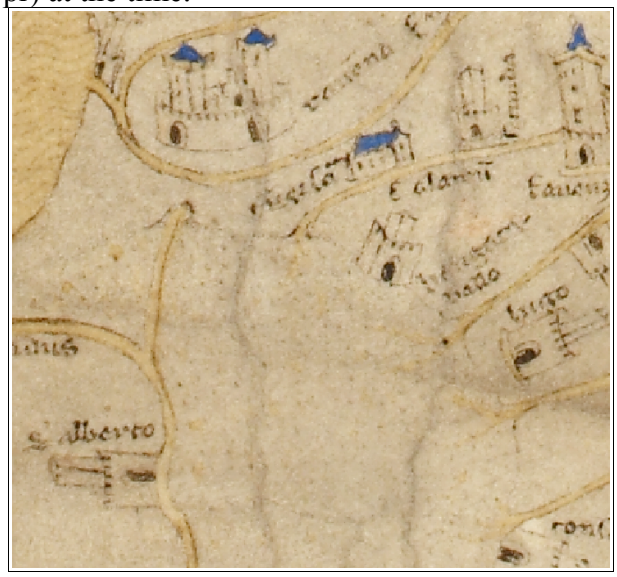
(Cotton-paludesChiana-300dpi-screenshot; scale ~ 1.6:1 for clarity)

(I can develop similar outlines for the other images if necessary)

8 Milanesi writes n1, p.164 (my translation): "The rendering of the Adriatic and Tuscan wetlands, and the lakes of northern Lazio, is equally meticulous; the basins of the Arno and Tiber are well designed and in the right proportions, even if the caesura between coast and interior is made evident by the course of the Tiber, which in Tuscia runs too close to the coast. The design of Tuscany precedes that of Pietro del Massaio (1459), which, however, does not differ much, even in the fluid style of representation; however, the Ombrone basin is missing, as in the Correr map, and the distribution of the centres of southern Tuscany is affected; La Chiana is also confused with Paglia, while the marshes of the Chiana and the Castiglione Lake (~Maremma) are well represented. "

(Cotton-Maremma-screenshot)

The Maremma near Grosseto in Tuscany shares this feature as well. The stippled surface is quite different from the wavelets signalling lakes such as nearby Lake Trasimeno (top, left) or “Lago d' P(r)usia”(p+underscore = pr) at the time.



(Cotton-Padusa-screenshot ; only the upper end is shown)

as the “Valle Padusa” Northwest of Ravenna[9] and extensive wetlands around the Venetian Lagoon extending from the Musone to the Padus Ficariolo/Ficarolo on the Cotton.

(screenshot from c-07710-07.tif @ 250dpi)

9 See J. White, *Italy Illuminated,* Volume I, Book IV, Region 6 Romagna, p. 313 “ […] The Padusan marsh begins at the canal, according to the geographers the only marsh in Italy. Vergil says of it in the *Georgics:* "or the stream of Padusa teeming with fish." The term embraces all the lagoons, swamps and marshes that we see lying between the Po and the territory of Flaminia (or Emilia) [...]”

Remarkably, the Pontine Swamps south of Rome and the Clanio Swamps north of Naples are simply ignored. Other wetlands, the Fucine lake/wetland and those between Rieti and Terni, persisting until today, as well as some periodically inundated areas in the lower Arno valley between Lucca and Pisa, today remaining as the “Padule di Fucecchio”, are shown in the regular lake signature.

On the one hand, the Chiana was used for transport as shown in, quote:

> The hills of Chiuso (between Cortona, Valiano and Foiano), for their strategic position, were in the past equipped with castles and equipped, although rudimentary, with ports for the landing of boats in service on the Chiana. The name of "Il porto" remains today in Farneta, Cignano, Fasciano, Bettolle, Creti, Foiano and Cesa. The port of Farneta is a neighbor of the Port of Foiano della Chiana,[...].[10]

On the other hand, the Chiana wetlands[11] were the theatre of intense military struggles between Guelph Florence, Ghibelline Siena/Arezzo and the Papal States. In the heavily fortified territory the swamps (and their knowledge!) came in handy but also prevented melioration. Only in 1840, a canal to the Arno was completed and the waters now drain into both, Tiber and Arno. So this signature may have had a military significance for its readers. Its reappearence in Germanus' modern Italy map clearly shows that the public both map-makers addressed was aware of and knowledgable about such subtle cartographical signals.

The topic of swamp signatures different from lake signatures is apparently also taken up by Nicolaus Germanus in his Italia Moderna 1467[12]. The light blue colour for the Chiana-, Maremma-

and Padusa valley swamps is there, including the Pontine swamps and the river Clanio north of Naples[13] but not those adjacent to the Venetian lagoon. Of course, these lighter colour shadings may

10 http://www.valdichiana.it/bonifica/storia2.php My translation of: Le colline del Chiuso (tra Cortona, Valiano e Foiano) , per la posizione strategica, erano in antico munite di castelli e dotate, sebbene rudimentalmente, di porti per l' approdo di barche in servizio sulla Chiana. Rimane oggi la denominazione de "Il porto" a Farneta, a Cignano, Fasciano, Bettolle, Creti, Foiano e Cesa. Il porto di Farneta è dirimpettaio del Porto di Foiano della Chiana, ov' è attualmente, il Cimitero Inglese della seconda guerra mondiale. Al riguardo gli Statutari Cortonesi nel 1325, deliberarono "tre navi nuove per i porti di Fasciano, di Foiano e di Creti, e questa di Creti lunga 42 piedi e larga 25". Deliberarono pure che "per le navi di Fasciano e di Foiano fosse chiesto il concorso rispettivamente di Montepulciano e Foiano. La spesa dei restauri al porto di Fasciano gravasse gli abitanti tra la Mùcchia e la Chiana"(Lo Statuto di Cortona dell' anno 1325).

11 Similarely, guelph Grosseto was contested by Siena until 1336 (Wikipedia 2018-10-20)

12 Screenshot of Tabl. X, taken from the highest resolution image I could find at https://polona.pl/item/cosmographia-claudii-ptolomaei-alexandrini-mathematicorum-principis-seculo-secundo,NzQ1NjM4Ng/18/#info:metadata

13 See J. White, *Italy Illuminated, Volume 2,* Book VIII, Region 13 Campania p.303.: “ [...] This is the river of which Vergil writes; "Clanius unfriendly, to Acerrae,"8° because in many places it floods the territory of the city [...]” and indeed, paraphrasing Eleni Sakellariou, *Southern Italy in the Late Middle Ages,* Leiden (2011) p. 254: In the fourteenth and early fifteenth centuries, the riverbeds of the Clanio, Volturno and Garigliano were not regulated,

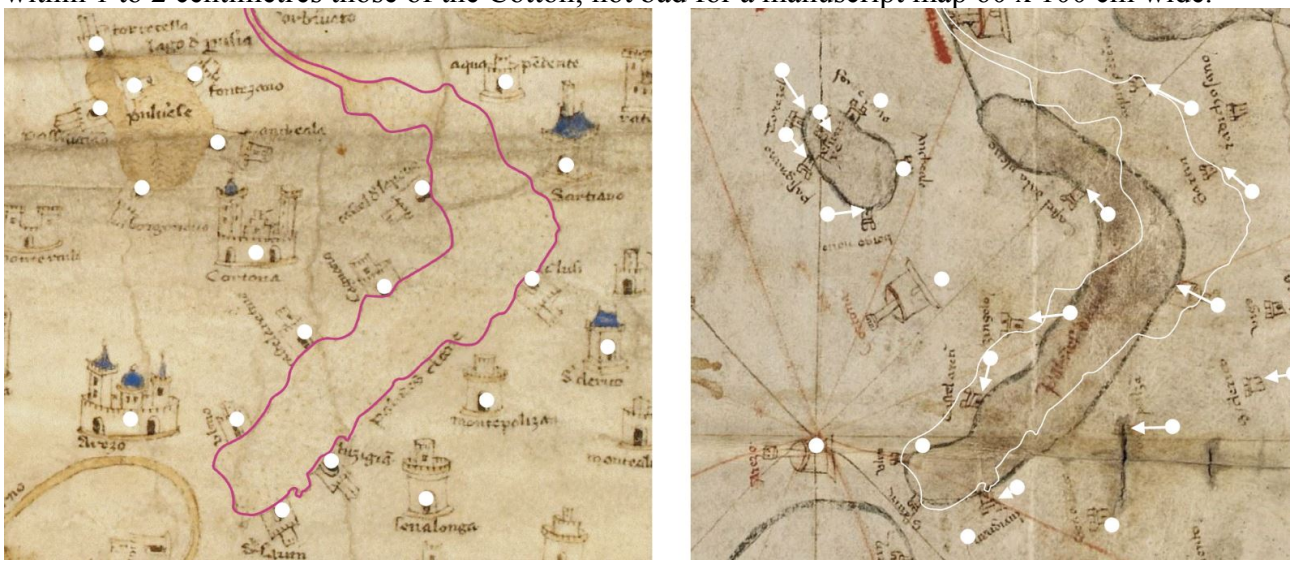
just be a technically deficiency (in Lago Maggiore there are also white patches) but one wonders about the differences. Is it just happen-stance or imperfect knowledge that the Cotton records swamps of military interest (in contested areas) whereas Germanus includes areas of economic concern?

To summarize, the Cotton has highly structured shorelines in he swampy areas and a carefully stippled surface signature speaking or projecting detailed knowledge of places. The maker of the Strasbourg map, was only interested in location and accessibility.

A common source?

Further detailed comparison of the two maps shows, that their similarities betray a common source but not an outright copy, either way. The idea does not rest only on the common over-all size but is also supported by two observations: common idiosyncrasies or errors on the one hand and distinct details in particular. So, both maps share the banana-shaped outline of the swamps but the real Chiana wetlands extended only from ulmo/Ripa di Olmo (where the canal was later dug) to clusi/Chiusi in a pretty straight North-South orientation. The bend towards East (left in the pictures) follows the course of the Chiana through hilly terrain but without swamps towards ? orbiuato/Orvieto. Hence, the banana-shape appears unique to a particular rendering or misunderstanding of a common source.[14]

Secondly, the outlines of extended objects (rivers and lakes) reveal a free-hand type similarity, supported by the near random up to 2cm long displacement vectors as shown below. A typical example is Lake Trasimeno: All cities are present, but the size and orientation of the oval are quite different. Note also the simplified outline of the swamps in the Strasbourg map which follow to within 1 to 2 centimetres those of the Cotton; not bad for a manuscript map 60 x 100 cm wide.



(Cotton&Strasbourg-Chiana-with vectors-300dpi-screenshot)

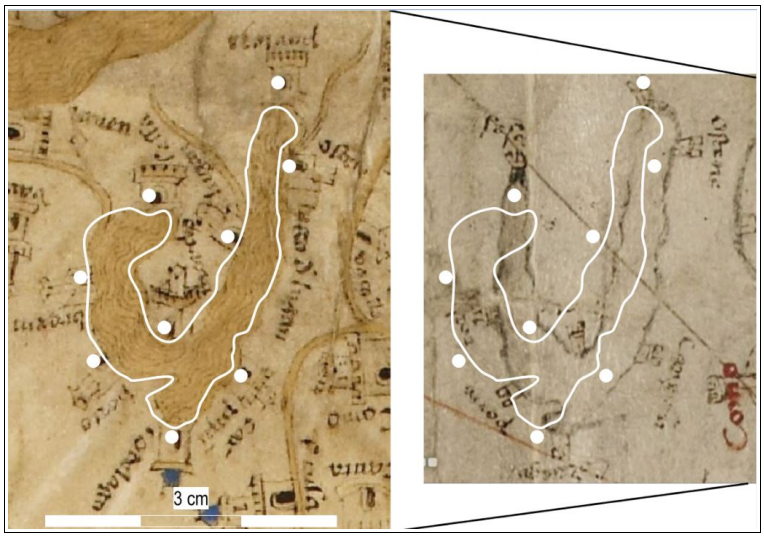
The toponym inventory has a high degree of common places but different spellings and selection. For instance, Cortona (494m) sits high above the valley floor and to the side, as shown in both maps. Below it at the shores, the Cotton has the town of cam?ia/Camucia but Strasbourg a zingolo/? possibly nearby Monsigliolo (Camucia-Monsigliolo, 273 m). Next to these sites, the Cotton has a castel d' lapena/? which I cannot find, whereas Strasbourg displays a castel dalla plane. In Tuscany, where electronic high resolution images of both maps can be confidently read, other examples

creating a zone of wetland. Robert of Anjou tried to check the problem but without lasting success.

14 Similar observations are seen in the North Italian Lakes region: The real Ticino enters Lago Maggiore between Ascona and Locarno but on both maps it enters east of Locarno. Also, Lake Varese is missing on both maps as is the Ombrone river in Tuscany.

include: the entry bolsena of Cotton becomes Bolgena and toscanello becomes Toschanela, vicarello and anguillara also lose an “l” and so on. Perhaps paleolinguistic and paleographic studies of the name forms will provide clues to origin and or maker of these exceptional charts.

in order to ascertain that the case of the Chiana valley is not an isolated occurrence, a look at other extended objects is necessary. A strikingly similar geographical lapses is seen at Lake Lugano



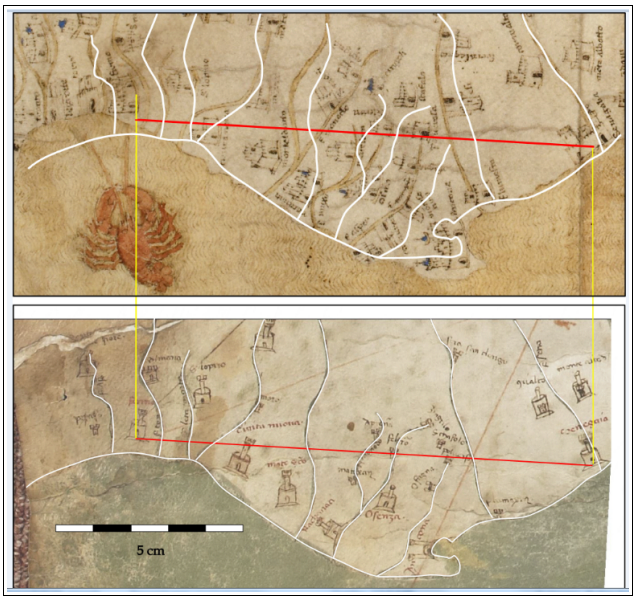
(Cotton&Strasbourg-Lugano-300dpi-screenshot)

where, into an area of only 3 x 4 cm, 9 toponyms and the outline of the lake are squeezed. Here the characteristic U-shape of the lower half of the lake is faithfully reported by both maps but the upper right half of the real lake to the North-east of Lugano is missing in both renderings. This clearly demonstrates their dependence on a similar (or the same) source carrying the inaccurate information. Other similar examples can certainly be found in a more detailed study but the message seems clear (to me): A common source was used.

The coastline in *Marca di Ancona*

Having dealt with inland sections, a third detailed comparison deals with (part of) of the extensive hydraulic network of the two maps. Here, I choose the layout and city complement of a 80 km long coastal stretch of the Marca di Ancona between Senegallia and Fermo,. This is precisely where the Strasbourg ends and where the coastline of the Cotton begins to rapidly change scale (see discussion of the river mouths just beyond Fermo.)

The result is intriguing:



(Cotton&Strasbourg3°-Anconitana-300dpi.jpg-screenshot)

These are excerpts of the Strasbourg map where it ends (below) and the Cotton (on top) at a scale 1:1 (in an A4 Format). The distance from Senegallia to Fermo[15] is shown by the red line which is 12.6 cm long. Let's first discuss the coastline and then compare the placement of the rivers.

The last named coastal city of Pedaso on the Strasbourg is missing on the Cotton which in turn has montefi?/Montefiore dell' Aso on the right bank. Now Pedaso is a port at the mouth of river Aso and not an inland site as shown on the Strasbourg. This is where Montefiore should be placed and is found on the Cotton. Hence we see two interpretations of adjacent cities. Otherwise, the near-perfect match of the coastline is marred in two places: at the beginning (left) beyond Fermo, as discussed above which was probably intended to be removed. Cape Ancona is much larger in the Cotton to accommodate the elaborate vignette and may be classified as a local phenomenon. On the other hand the same miniaturist squeezed his beautifully sculptured vignette between the two adjacent river signatures for the Aso and Chienti. On the ground, their estuaries are 15 km apart but only 1 cm on both maps suggesting local compression to accommodate the scale-shift already discussed. As to the river tracings, neither their estuaries nor their individual meanderings are comparable. However, they are (mostly) always identifiable by their riverine cities or names. This suggests that primary data are the cities with appropriate sketches of heir respective rivers, but not more.

Conclusion

I believe in two master-maps one for Northern Italy and another one for the Kingdom of Naples.

15 By convention, the lower centres of the large Cotton vignettes are used. These carry usually a black door which is easly spottd especially in faded areas. In th trasbourg map, most vignetes are so tiny that there is usually no problem

The Strasbourg may even have been nearer to a source-map (or copy thereof) despite its poor graphics (working copy? brouillon??) Cotton has names missing from the Strasbourg and vice-versa, including numerous variant spellings of the same place. Clear cases of alternate names in a sequence were presented: Pedaso/Montefiore and Cortana → Camucia of the Cotton where the Strasbourg has Cortana → zingolo/ Monsigliolo. Both places are about 3 km apart and today the suburbs Camucia and Monsigliolo of Cortana. Such an exchange of nearby placenames suggests. that an itinerary type data set was available from which one mapmaker chose one name and the other another. The same happened for rivers: near Fermo, Strasbourg has the Aso named but not the Cotton. Clearly more examples are needed but the case is opened.

So, some discussion seems appropriate.

On scales used in this essay,

I use information provided graciously by Tom Harper, the current map curator of the British Library, who generously made available the best available electronic images of the Cotton for research.

(Strasbourg&Cotton-c08-1zu1-overlay-screenshot)

The only real size information on the Strasbourg map I have is from an image provided by Strasbourg University at https://bvmm.irht.cnrs.fr/iiif/17008/canvas/canvas-1420797/view where Rome is 83.5 cm from the lower end of the map as shown by the red line. The grey rectangle in the above picture is 66.5 x 137 cm and includes all (warped) parts of the Cotton membrane-map. On the Cotton, the distance from the bottom to Rome turns out to be 81.3 cm according to the (best electronic guess) of the fiduciary scales photographed together with the map. In the above image Rome of the Cotton just is hidden by the overlay of the Strasbourg map. Working on the original may change these values somewhat but not substantially. Above all, questions about warping and shrinking (surely differently for both maps) during 600 years will remain. As a (really unsurprising) consequence, numbers derived from and for these maps and their ratios are, and will remain, approximate.

Differences of 2 out of 80 cm may also stem partly from a definition of what the real lower edge constitutes in the two images. In addition, the placement of the Rome vignette may have followed various distinct procedures: centre of image or lower edge centre as obviously in general use when depicting vignettes along shores or rivers and so on. Such differences easily accumulate, hence, I

use two 1:1 electronic images and take several internal distances such as the triangle Venice – Rome – Genua. The generic overlay of both maps shown above is entirely supported by these additional findings and form the verification of the superposition of only the outlines, used above.

To get an estimate for the consistency and or distortions by several factors: shrinking warping of the animal skins, distortion from the photographic process recalibrating the electronic images of the resulting representations on my laptop. The overwhelming majority of details suggest a common source but different graphical dexterity or attention. Finely traced – and superbly realistic – inlets and promontories of the Cotton suggest superior local knowledge but Strasbourg's peremptory strokes and factual but rather crude vignettes may signal a more technical 'preliminary', even preparatory stage of the same compilation. Age consideration by experts on palaeography would be welcome.

It seems possible/likely that the master-chart not only served Cotton and Strasbourg but also those mentioned below. (That would fit, not contradict). In fact, Milanesi 2009 writes

> "[...] Molly Bourne, in 1999, vehemently advocated the hypothesis that one of these maps, Cotton, is somehow related to the Wall Map of Italy designed for the second time by Antonio Leonardo in the Palazzo Ducal in Venice after the fire of 1483.[...] and continues in footnote 21 that [...] M. Bourne, tic., P. 65. Peter Barber (personal communication) believes that the two maps may have had, at least, a common source; which seems to me more than possible.[...] "

In her note 45 Milanesi says that "[...] Strasbourg has the names of the lakes but not of the rivers and seas; [...]"

Yes and no: Strasbourg generally lacks river names but not systematically. Without an extensive search, it appears to me that those names which are given may have helped to sort out in a practical manner a question like "where are we at the moment?" either during building the map or during a copying process. For instance: there are six rivers entering the Adriatic Sea between Ravenna and Rimini all named in the Cotton but only the fifth is named in the Strasbourg map. Nearby, fully nine rivers enter the "Valle Padusa" between Bologna and the coast. On the Cotton they are named and simply stop at the rim of the stippled area, whereas on the Strasbourg, they enter namelessly a designated lake but the next to last is named. Surely, more study is needed.

Finally, it is unclear whether the imaginary boundary from Ostia to the river Tronto was a political, linguistic or cultural watershed. The Tronto was indeed for many centuries the southern limit of the Marches of Ancona, whether of Langobardian, Carolingian or Angevin obedience. Note also that the famous bisected map of Italy by Fra Paolino continues its northern half down to the Gargano peninsula so that this terminus is not a fixture of historic geography.