
Il Compasso da Navigare

Autor:

Data de publicació: 04-05-2023

Sapri rouinata - Prof. Arch. Francesco Attanasio – Studies on Sapri (SA) and on the 'lower Cilento' – Studies of history, historiography, origins, uses and customs, folklore, dialect and more.

Il Compasso da Navigare: an anonymous Mediterranean pilot book dating back to the mid-1200s

Oubliette Magazine

05/03/2020

"The Compasso da Navigare still awaits the beneficial and profitable work of a willing man, who will bring to light all the gold that is hidden there, under the dross of errors of nomenclature, where the copyist had darkened it." – Cornelio Desimoni, 1867

Il Compasso da Navigare - Motzo

A portolano, from port to port, is a practical manual for coastal navigation based on experience and observation, in which the navigator can find the main information relating to the area in which he sails or in which he intends to plan the route of his ship.

The portolans of the oldest dating derive from the periplus of Greek and Latin origin: in classical times, navigation was carried out using not only the experience of the gubernator (in Greek ????????? – Kybernetes, helmsman), books that described the coast, not necessarily intended for boating, but more often consisting of accounts of previous voyages.

Unlike nautical charts, of which there are no traces in Greek and Roman times with periplus and subsequently the portolani make use of an uninterrupted tradition and substantially unchanged to this day, deriving from centuries of use and experience.

Advertisement

The oldest known portolanic text of the Mediterranean Sea is the Periplus of Scylax of Carianda (in Greek ??????, Skýlax) dating from the mid-sixth century BC and survived in medieval copies.

The first drafts of the actual portolani date back to the thirteenth century, initially in the Italian peninsula and later in the Iberian Peninsula.

The medievalist Bacchisio Raimondo Motzo (Bolotana, 6 March 1883 – Naples, 14 June 1970) in 1939 traced back to the mid-thirteenth century, on the basis of a careful philological comparison between four different editions of the same, the portolano of which we discuss in this article: Il Compasso da Navigare.

It is an Italian work composed between 1250 and 1265 in two parts that complemented each other: the portolano, or the written guide with instructions for navigating the Mediterranean Sea, and the large nautical chart of the Mediterranean, with the representation of the coasts.

"The importance of the work presented itself to me very different, when, having found a manuscript of the work of Uzzano much better[1] and persuaded me of the interest of the text of the Compass, I set out to carry out the work that Desimoni had hoped for. Put to the transcription of the manuscript, it was immediately revealed to me that the Compasso was not the original work of Uzzano, who was not in this part if not a simple amanuensis, but was rather the reworking of a work prior to 1300, which deserved to be traced and reconstituted." – Bacchisio Raimondo Motzo, 1939

The studies carried out by Professor Motzo were ready for printing in 1939, but because of the war events the important work of the Sardinian philologist saw the light only in 1947, when it was published in the Annals of the Faculty of Letters and Philosophy of the University of Cagliari.

Professor Motzo started from the discovery at the Guillot library in Alghero of a manuscript attributable to the group of portolans written by Giovanni da Uzzano and attributable to a thirteenth-century amanuensis school dedicated to Porto Pisano to the copy of portolans and nautical charts.

Bacchisio Raimondo Motzo

The work of Professor Motzo went far beyond the transcription and publication of the manuscript that was considered invaluable by Desimoni in the second half of the 1800s for the amount of data contained and for its originality.

The publication of the manuscript was accompanied by a detailed introduction in which the question of the origin and evolution of portolans and nautical charts was addressed, which as anticipated complemented each other during navigation.

Professor Motzo also announced his intention to take care of the re-edition of three other portolans deriving from the Compasso da Navigare in order to create a "corpus" that would highlight the contribution made by Italy in the construction of geographical and nautical knowledge and the history of navigation.

He referred in particular to the codex Grazia Pauli of the late fourteenth century, the codex Carlo di Primerano of the mid-fifteenth century and the codex of Giovanni da Uzzano of the mid-fifteenth century, which are kept in the National Library and in the Riccardiana Library of Florence, in the University Library of Cagliari and in the Österreichische Nationalbibliothek – Austrian National Library.

Subsequently, in 1985, Dr. Ornella Bazurro published a Genoese portolano of the mid-sixteenth century, intended for the Doria war fleet and written by Gerolamo Azurri; this portolano refers extensively to the Compasso da Navigare dell'Uzzano, with extensive annotations, corrections and updates of the Azurri that readapted it to the needs of military ships. Many commercial ports and notes useful to merchants disappeared, in favor of shelters, hiding places, crossings and routes.

Advancing age prevented Professor Motzo from completing his work, which was interrupted by the transcription of three of the aforementioned manuscripts, all of which derive from Codex Hamilton 396:

"But then here is a manuscript with the date 1296 that takes us to the thirteenth century. It is the Italian manuscript 396, now in the Prussian State Library in Berlin. Written on good parchment, measuring 21×14 cm [...] Two long signs of reference to the beginning of f.14, description of Porto Pisano, and to the beginning of f.15, description of Monte Argentario with Porto Ercole and Porto S. Stefano, reconnect this manuscript to Tuscany. Like the oldest nautical chart that has come down to us, which is called Pisana because it already has a family from Pisa[2], ms. Hamilton 396 was owned by navigators who had in Porto Pisano and in the Tuscan coasts their center of interest. Writing is a gothic book of the late thirteenth century [...]" – Bacchisio Raimondo Motzo

We can say something more about the Codex Hamilton 396, this portolano was owned by Tuscan merchants and was copied by an amanuensis, the book begins in Latin:

"In nomine domini nostri Ihesu Christi Amen.

Incipit Liber Compassum M CC L XXXX VI de mense januarii fuit inceptum opus istud. [3]" –Anonymous

And it also ends in Latin:

"Explicit liber portuum totius maris in quo potest navigari.
Deo gratias Amen.
Qui scripsit scribat semper domino vivat[4]" – Anonymous

On the other hand, the linguistic and stylistic difference with the real author of the work is remarkable, an expert helmsman who wrote in the Sabir language, a lingua franca used in the Mediterranean navy of the time spoken by Spanish-speaking navigators and merchants and by Italian speakers, which developed beyond the area of contact between Portuguese and Arabic and went through a process of Hispanization or Italianization, Depending on the ports where it was spoken:

"Lo Compasso de Navegare

Aesto si è lo Compasso e la starea de la terra, si como se riguarda, en quanta millara per estarea. En primieramente da lo capo de San Vincenzo a venire de ver Espagna ver levante." –Anonymous

This anonymous author, drawing on older portolanic sources, starts the description of the coasts from Cape St. Vincent in Portugal, describes Gibraltar, and then the Mediterranean coasts of Spain, France, Italy, the Balkan Peninsula, Greece, up to Constantinople. It skips the description of the Black Sea and resumes with the coasts of Anatolia, Syria, Palestine, and finally North Africa up to the Atlantic coast of Morocco, ending in Saffi.

"And to Safin the earth ends, that from here on no earth be drawn." –Anonymous

Below is the description of the coasts of the major islands of the Mediterranean: the Balearic Islands, Sardinia, Corsica, Sicily, Malta, Crete, Cyprus. On this last island the author of the manuscript marked the end of his work:

"Now it is complicated the book that if it claims Compasso da Navegare, zoè per estarea de tucta la terra entorno lo mare, e tucte le isole de la pelago e tucte l'isole de mare e granne e peticte." –Anonymous

The Compass to Navigate

As can be seen, the Compass in its original version did not include the Greater Sea of Romania (the Black Sea). The redaction of this coastal stretch was added later, but according to Professor Motzo not many years after the first redaction and it is probably an addition also datable to the thirteenth century. The copyist continues his work of transcription:

"Here ennanti will speak and devizarà de lo Mare Maiore de Romania." –Anonymous

Finally, this additional text concludes with the sentence:

"Here it is complicated to turn all around the Mare Maiore from the east and from the west, that is, the Mare Maiore de Romania, inside Constantinople". –Anonymous

Professor Motzo, analyzing the toponymy and historiography of the Mediterranean coasts, was able to estimate the first composition of the Compasso around 1250, the year of the death of Frederick II.

"De lo dicto grado de Lacte [Grau de Lattes] en Aque Morte XX millara entre levante e greco. Acque morte is a port with bottom plano lontano de terra meczzo millaro [...]" –Anonymous

In 1226, following the Treaty of Paris, the Count of Toulouse ceded the sovereignty of the Languedoc coast to the King of France Louis IX, who chose Aigues Mortes and its port as the starting point for the crusades of 1248 and 1270. The mention of this port is indicated by Professor Motzo as a post quem term for the composition of the text of the Compass, although I think it is quite possible that Aigues Mortes was already frequented as a natural harbor well before the works of Louis IX.

Of greater help for the dating of the work seems instead the passage concerning the port of Brindisi:

"The mouth of the port of Brandiczo inside the island stae a greco et a garbino." –Anonymous

Those who are accustomed to sailing in the lower Adriatic know well the existence of the inner port of Brindisi, of which in this passage is barely mentioned. The access channel to the inner port was commissioned by Charles I of Anjou who in 1276 started the excavation of the canal, the construction of the two watchtowers and the barrier chain between the two towers. The Compass seems to have been written prior to these works.

As far as Sicily is concerned, another fundamental toponym suggests a draft of the work after 1232:

"De Rassalibom a l'Agostara V millara. And if thou wilt mount the port of Augusta, go far from the island I millaro de tucte part, And when you will close within no port you will see the islands of the master's part, and bridge within the island and the cettà, et à en that part bono ponedore."

The city in question is Augusta, refounded in 1232 at the behest of Frederick II who had the populations of Centuripe and Montalbano transferred there.

Finally, Professor Motzo insists on the Italian origin of this group of portolans according to the following theses:

- " 1. The description of the Catalan, French and Provençal coasts, southern Italy and the Adriatic is rather sketchy, compared to the Ligurian, Tuscan, Corsican and Sardinian coasts.
2. In the description of Provence, while following the general trend from west to east, the reference points are given in reverse, as if the author were used to sailing from Pisa and Genoa to the west.
3. All four of our reviews are more or less related to Porto Pisano and Pisa.
4. The linguistic substratum of the Compasso, even with infiltrations of other dialects, is the Italian vernacular, not cleaned up for literary use, but as it was spoken by sailors accustomed to going from port to port.
5. The Compass did not originally include the Mare Maggiore of Romania [...] before and after the Treaty of Nymphaeum (1261) and the fall of the Empire of Constantinople (1266) the Genoese interests in that sea were very strong and it would not be omitted to describe it. The author lived and wrote in an environment that had little interest in that sea. All things considered, I believe that the Compasso was composed in Pisa." – Bacchisio Raimondo Motzo

Today the thesis of Professor Motzo is widely recognized and the Compasso da Navigare is classified as a Pisan manuscript. This text was however in use on Tuscan, Ligurian, Venetian ships, it was transcribed and glossed by Genoese, Pisan, Venetian, Spanish and Portuguese scribes and sailors.

Its linguistic variety in the different reviews makes it the book that allows us to get closer to the knowledge of the sabir language, the lingua franca spoken in the ports of the Mediterranean. To strengthen this thesis, the second part of the work is added, namely the great nautical chart of the Mediterranean, of which the Carta Pisana cited above is a valid example. From this derive the papers of Giovanni da Carignano and Pietro Vesconte, which are improved and updated copies.

This parchment map represents the Mediterranean Sea from Cavo Sancto Vincenzo (Cape St. Vincent) to the Black Sea (the most damaged part), a portion of Flanders and the British Isles, the North African coast with Atlantic Morocco.

The Compass to Navigate

AIR FRANCE

¿El sueño de tu madre es conocer Cancún? ¡Hazlo realidad!

Utiliza nuestro 10% de dto y disfruta de las playas paradisíacas de Cancún

MORE INFORMATION

The Mediterranean appears represented in its entirety with a representation not far from the truth to the point that the Tyrrhenian, Sardinian, Sicilian and Corsican coasts are almost superimposable to a modern map. These maps were copied from the originals produced by the cartographers, who thanks to their experience were able to produce a first copy (in technical terms an eidotype) that they modified by adding news and corrections.

These drafts were then replicated with a mechanical and geometric process in the workshops of the scribes. The demand for these papers and manuals became great, until it had even more than one for each ship as evidenced by an inventory of 1294 taken from the Archive of Naples, in which Charles II (called Lo Zoppo), at the request of the Infante of Aragon ordered the return to the crew of the Messina ship "San Nicola" – owned by Raniero Grimaldi di Nizza – the vessel and the objects stolen from the galley, which were sold to Taranto. Among these were mentioned in the order that follows a "globe" (nautical chart) with compass, a magnetized needle with its accessories, a second globe, a second magnetized needle, a third globe. The importance of this list is important because it attests that on board a single ship there were three nautical charts and two compasses, while with regard to the term "compass" relating to the first chart, it can be assumed that it was the nautical compass used to detect distances on the chart.

On the identity of the author of the *Compasso da Navigare* Professor Motzo is not unbalanced, but still launches an interesting track and "[...] that only further research can bring. I would say that he was a skilled helmsman, who had learned, at the school of Leonardo Pisano or his disciple Campano da Novara, how useful it is to do everything "in number and in mensura". – Bacchisio Raimondo Motzo

The author of the book *Compasso* and *Compasso Carta* had a mathematical and precise mentality that aimed straight at the goal. The creation of the great nautical chart of the Mediterranean reveals its mentality and requires great geometric and calculation knowledge, a considerable drawing ability and a great direct knowledge of the Mediterranean coasts and navigation.

It is impossible to better represent the environment in which the helmsman who composed this work was formed and worked than with the words of Leonardo Pisano himself, called Fibonacci (the one who introduced Arabic numeration in the European world). Son of merchants and traveler, he lived in the same years in which the *Compasso da Navigare* was composed:

Leonardo Pisano known as Fibonacci

"When my father, public scribe at the customs of Bugia on behalf of the Pisan merchants, was appointed to direct it, since I was still a child he made me go to him [...]. Realizing the usefulness and advantages that would come to me later, he wanted me to study the *abbaco* there for a time and be instructed on it. There I was introduced into this art by a wonderful teaching through the nine figures of the Indies. The knowledge of this art pleased me very much compared to the others, later with assiduous study and engaging in discussions, I came to understand how much of it was studied in Egypt, Syria, Byzantium, Sicily and Provence, places that I repeatedly visited for my commercial trips. For this reason I considered the algorithm and the arcs of Pythagoras almost an error compared to the procedure of the Hinds studying it more carefully and adding something on my own initiative and more by applying the subtleties of Euclid's geometric art, I undertook to compose as clearly as possible this book divided into 15 chapters, presenting you with demonstrations

almost everything I have inserted. And this is so that those who are attracted by this science may be perfectly instructed in it, and the Latin peoples may not find themselves excluded from it as it has been until now." – Leonardo Fibonacci

Advertisement

This treasure trove of knowledge was collected in the *Liber Abaci*, the *Practica Geometriae* and the *Liber Quadratorum*. A lost work is instead the Book of merchaanti said of lesser guise and the Book above the X by Euclid of which the book "Della decima ed altre gravizze contenuti nella Pratica della Mercatura" by Giovanni da Uzzano, containing also a review of the "Compasso de Navigare" would seem a reminder.

Two other clues would lead back to this mathematical school: the use in the thirteenth century on board the ships of the "toilet de Marteloio" or "Razon a navegar co' tutti i venti", that is a particular geometric method that gives course and speed of the ship, still serves to estimate the off-course given by the ship's scarroccio, allowing to trace the correction to be given to the bow of the ship to get back on course. The construction of this table presupposes the knowledge of some algebraic and geometric notions that are developed for the first time in the school of Leonardo Fibonacci.

The toilet system from Marteloio is mentioned by the Majorcan alchemist Raimondo Lullo (mid-thirteenth century) and is then well described in the fifteenth-century portolani of Andrea Bianco and Giovanni da Uzzano.

The second clue is given by the scale in miles used in the construction of the Mediterranean map. Instead of the traditional Roman mile, equal to 1480 meters, the map uses the *miliarum geometricum*, composed of 1000 geometric steps equal to 1.23 meters each. Following this rule one mile corresponds to 1230 meters.

Taking into consideration these two data and analyzing the map better, the most striking thing is the grid that entirely covers the design of the coasts, which appeared for the first time in history with the *Carta Pisana*. This consists of a double lattice of larger and smaller squares superimposed in such a way that the sides of the larger squares constitute the diagonals of the smaller squares. The crossing of these lines creates in turn at the points of intersection of the two reticulates a series of small roses with 8 arms, corresponding to the eight main winds. Finally, the map is completed by two large wind roses (formerly called compasses), which give the directions of the main winds and their fourth and octaves.

The sides of the largest squares, when compared to the milestone scale, are 100 miles long each. Half a side of them will therefore correspond to 50 miles, while if you apply the subdivision of the staircase on the entire side you can get to a subdivision up to 5 miles.

This grid is not to be considered, however, a geographical network of latitudes and longitudes, but must be taken into account purely as a geometric network of abscissa and ordinates, on which the designer had a continuous and immediate reference on which to hook the relief of the coasts.

The coasts in turn were traced on the basis of data collected by helmsmen in written portolans, in particular trilaterating distances from one place to another both along the coast and in the peleggi[5], and considering the orientation of the coast during navigation.

The designer, armed with a compass, had to do nothing but transport the distances on paper and position them according to the orientation. The accuracy of the design was and still is given in the traditional survey – for example in the archaeological field – by the precision in the measurement and by the abundance of the data collected, verified by a series of cornerstones of which there was a certain measurement, which served as control points of the trilateration.

These were given by the localities from which numerous peleggi. In this way, through various cross-checks, the trilaterations of even considerable distances were agreed.

Mediterranean Boating – Bartolomeo Crescenzo

To solve the problem of knowing how in ancient times the distances between two points at sea could be measured and how much the ship advanced in a unit of time, Bartolomeo Crescenzo (1565-1605) comes to our aid.

Roman, navigator, cartographer, mathematician and author of the book "Nautica Mediterranea", in the tenth chapter of the second volume of his work entitles:

"As is known demonstratively how much the vessel spends in each shovel or oar waterfall."

In this chapter he recalls how Aristotle solved the problem, and observes:

"It is the journey of the oars manifest to itself; The oarsmen themselves understand with the use how many banchate flows at each shovel their galley. What the oarsmen observe is that in the end of the shovel, numbering from the place where the shovel struck in the water, they know how many banchate the galley spends [...]"

Knowing the fixed distance between the banks, the progress from one stroke of the oar to another was calculated.

For sailing ships this system was different, but already Vitruvius in the first century BC described the thalassometer: an instrument used on ships that consisted of a paddle wheel placed at the waterline, which rotating operated a mechanism which at every mile, albeit with a certain margin of error, He dropped a pebble into a vessel.

The instrument has also been described in the "Dioptra" of Heron of Alexandria, unfortunately not datable precisely, but between the first and third centuries AD.

Leonardo da Vinci made a reconstruction based on Vitruvius in the sixteenth century. Other copies were replicated by Leon Battista Alberti, Nicolò Tartaglia, and by Bartolomeo Crescenzo himself, who wrote:

"With whom it is rightly known at all times at the stern or at the Orza that the wind blows and the ship walks."

On the basis of all these elements, the Compasso da Navigare stands as the most important work of nautical science of the thirteenth century, far superior to the Book of King Roger of Al-Idrisi, which still falls into the book typology of the periplies, and superior to Marco Polo's Million, although very singular in its descriptiveness, but both devoid of scientific elements in the modern sense of the term.

Unlike these two works, the Compasso da Navigare offers a graphic representation and a systematic and systematically conducted description of the vast region of the Mediterranean basin.

Added to this is the historical value for the description of coastal resorts at that particular time.

Mediterranean Portolano

Towers, churches, monasteries, castles, ports, cities, are mentioned as inhabited, uninhabited, or even in ruins, the changes of the coastlines in a chronological span of at least three centuries can be observed if we consider the editions of the Codex Hamilton 396 and subsequent copies with the due updates, which rightly insert the Compasso da Navigare among the first works of Italian scientific prose.

"Aesto si è lo Compasso e la starea de la terra, si como se riguarda, en quanta millara per estarea. En primamente, da lo capo de San Vincenzo a venire de ver Espagna, ver levante." – Anonymous

Written by Claudio Fadda

Notes

[1] The manuscript was in the Guillot library in Alghero.

[2] Now at the National Library of Paris.

[3] "In the name of Our Lord Jesus Christ Amen/ Begin the Book of the Compass/ This work was copied in January 1296."

[4] "End the book of all ports and seas in which one can sail./ Thanks be to God, Amen."

[5] Crossings.

Bibliography

Il Compasso da Navigare, edited by Bacchisio Raimondo Motzo, 1947, Annali della Facoltà di Lettere e Filosofia dell'Università di Cagliari