

Historia marítima y de la navegación en el Caribe e Iberoamérica II
Especialización en Patrimonio Cultural Sumergido
Cohorte 2019

Shipbuilding in Europe

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Bogotá, April 2019



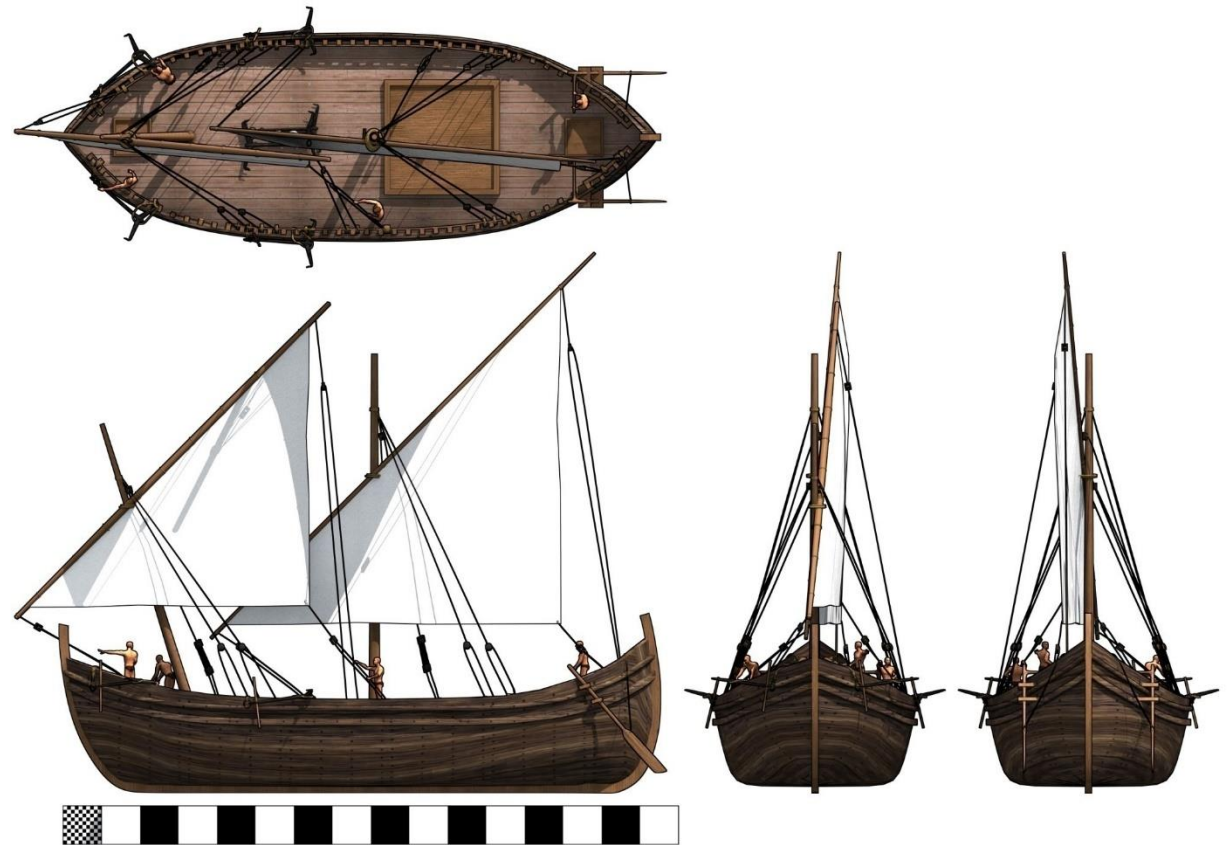
Part 1

Ships of the Explorers



1100s – Mediterranean Sea

The typical Mediterranean ship was a one-masted lateener, like the Serçe Limanı, c 1025.



1100s – Mediterranean Sea

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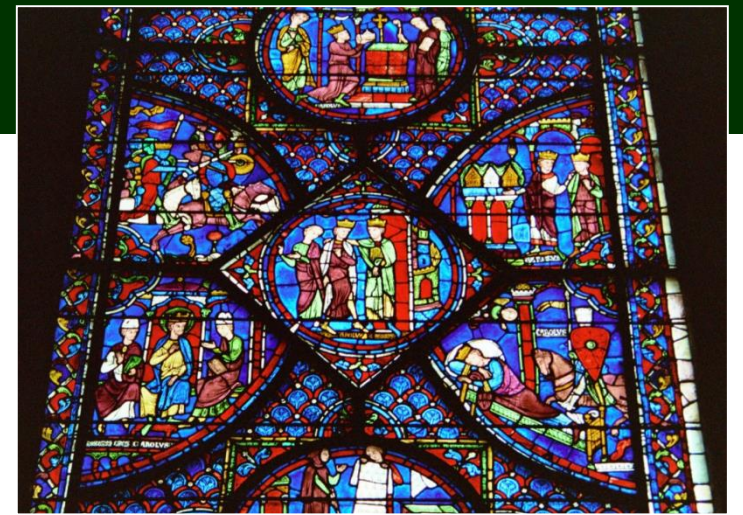
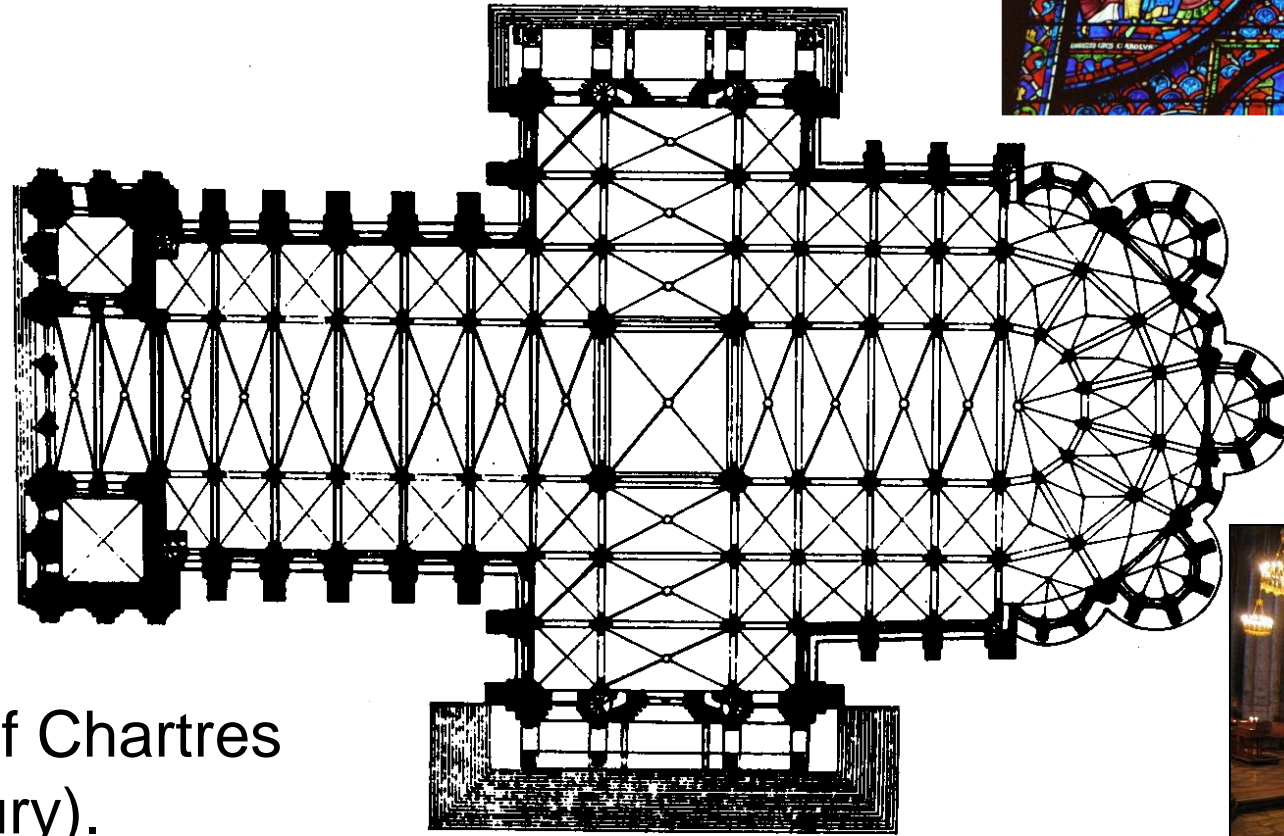


Ryan Lee, Texas A&M University





Cathedral of Our Lady of Chartres
(started in the 12th century).



There are no monumental ships in this period.



1200s – Mediterranean Sea

The typical Mediterranean ship was a one- or two-masted lateener, although there may have been larger vessels.



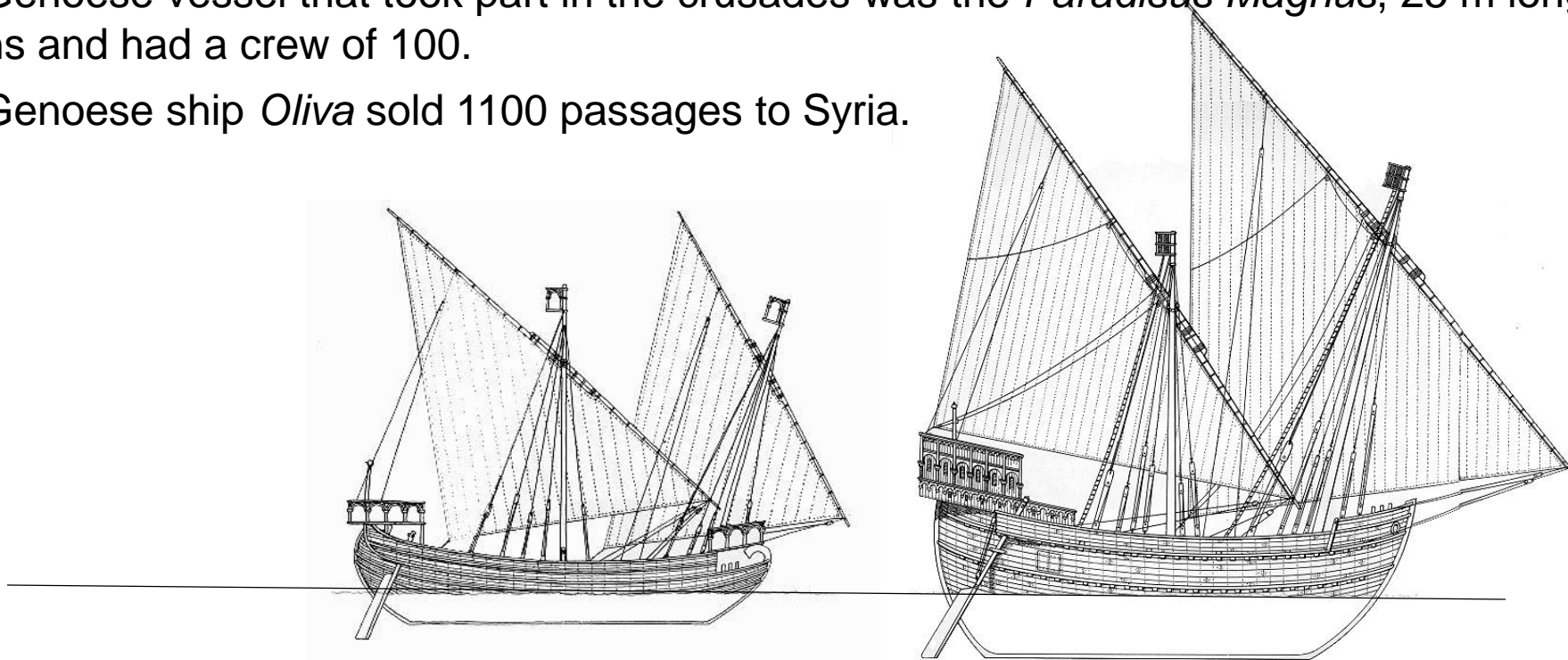
Image of a three-masted ship from an 11th century Islamic plate.

1200s – Mediterranean Sea

Sizes varied. Although most ships were relatively small, in 1268 the Venetians offered Louis IX of France a large ship (a *nave* or *buss*) to take part in his crusade to Tunis: the *Roccaforte* which was 500 tonner and mounted two or three masts with lateen sails. This was exceptionally large for its time. The other large Venetian ships that took part in the crusade were 190 tons.

The largest Genoese vessel that took part in the crusades was the *Paradisus Magnus*, 25 m long, could carry 600 tons and had a crew of 100.

In 1248 the Genoese ship *Oliva* sold 1100 passages to Syria.



1100s

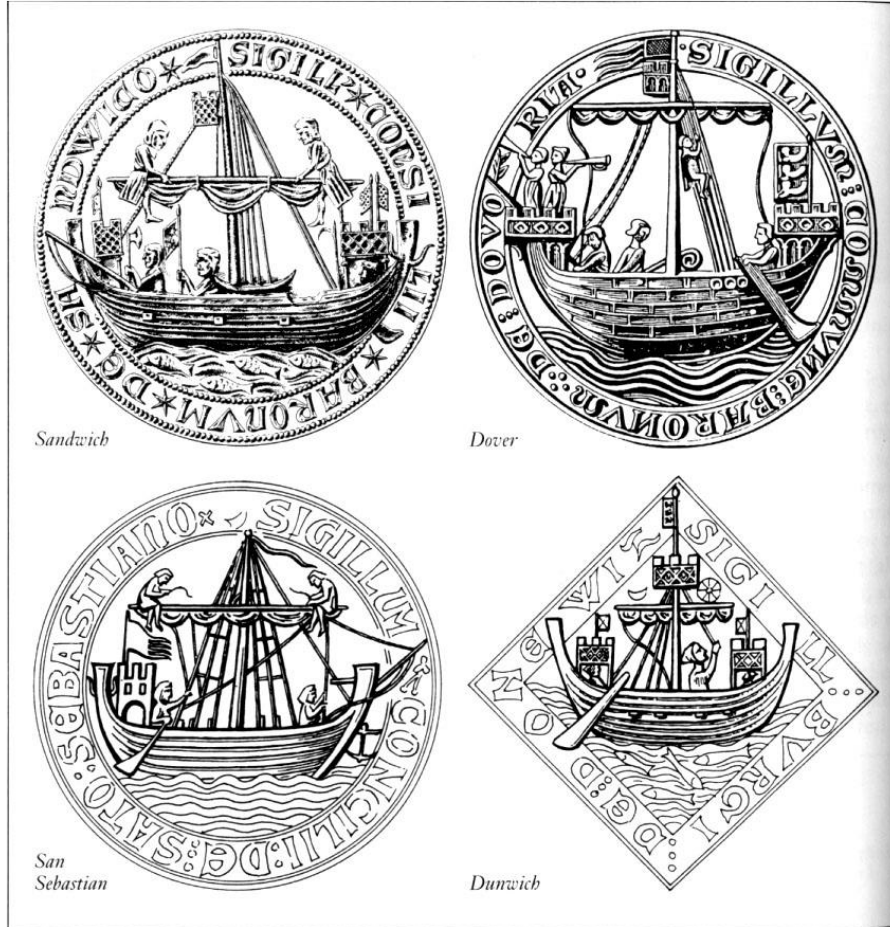
Northern Europe

In the north it was a one-masted, square-rigged vessel, clinker-built, like the Skuldelev ships, c. 1050.



1200s – Northern Europe

In the north the cog developed (appeared in the 1150s in Denmark), with a straight stem post, flush laid bottom, and a central rudder, partially replacing the lapstrakes.



1300s – Northern Europe

While cogs rule, larger lapstrakes – the Portuguese *barcas*? – continue to operate.

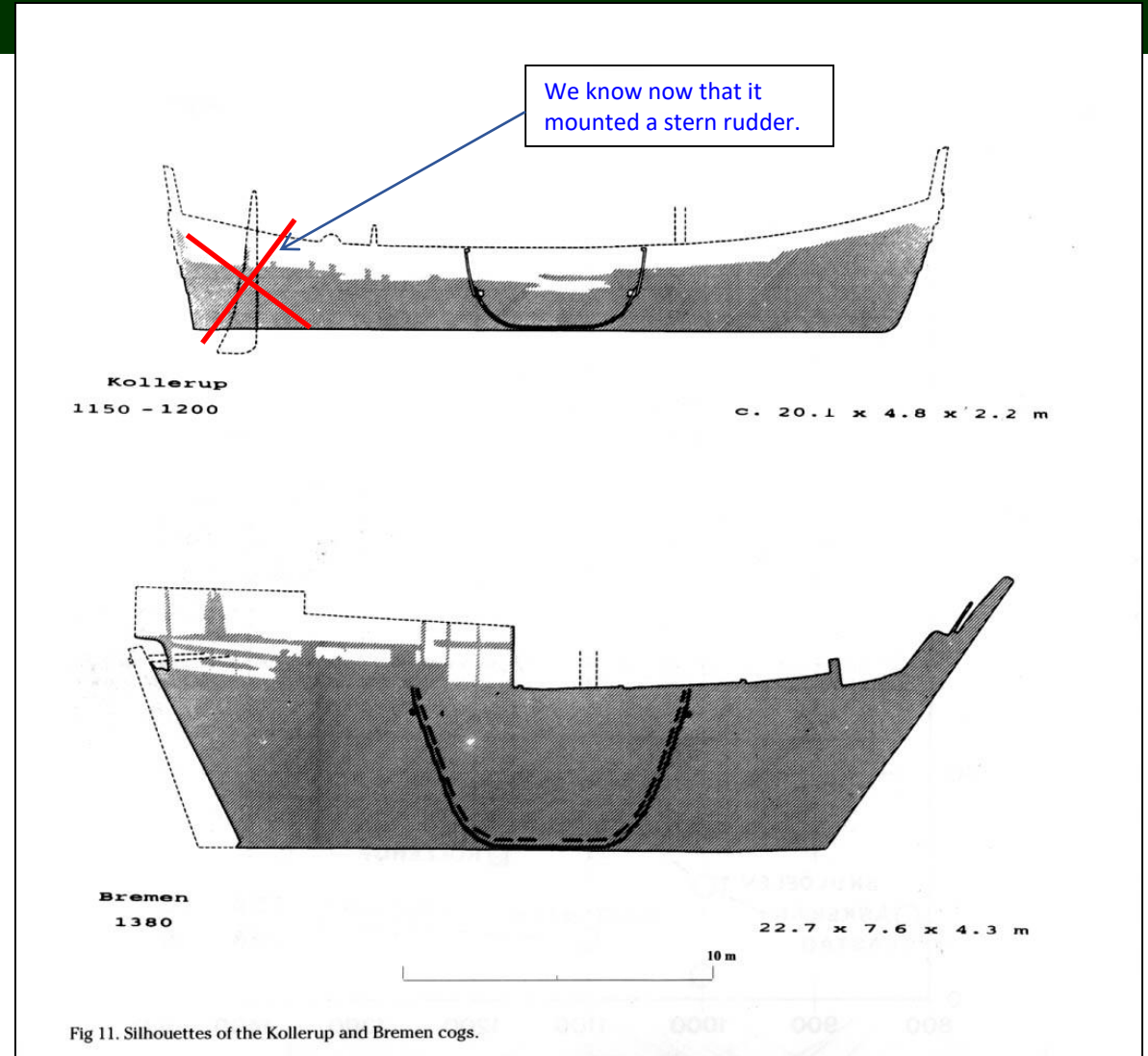
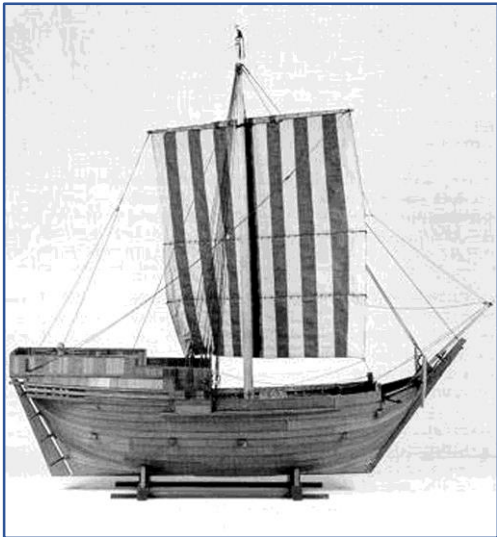


Fig 11. Silhouettes of the Kollerup and Bremen cogs.

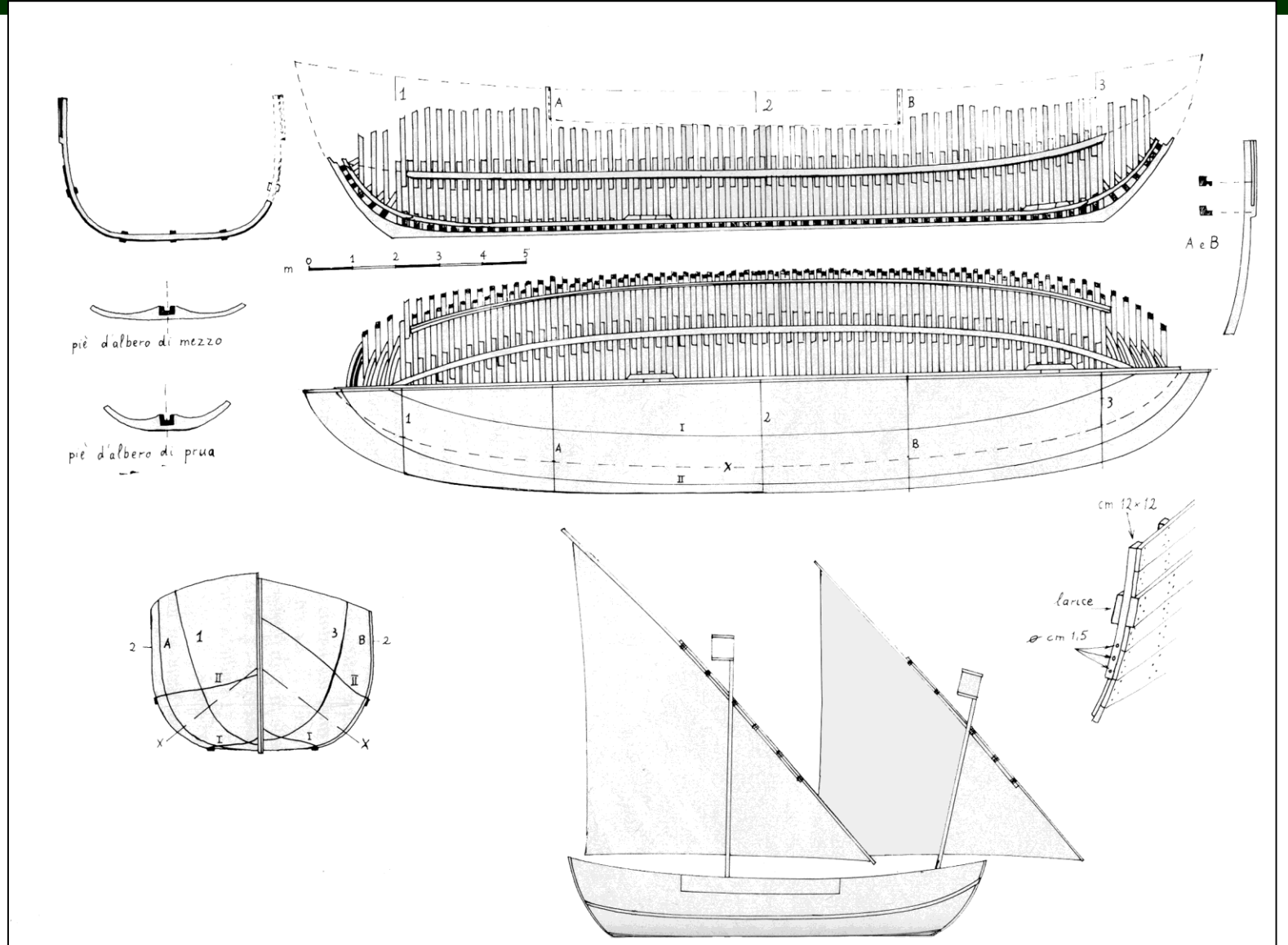
1300s – Mediterranean

The *navi* are replaced in certain routes by *cocche* with one mast, one square sail and fore and stern castles. Mediterranean *cocche* grew substantially in size in the first half of the 14th century.



Contarina 1, c. 1300

Found in 1898 at Contarina, near Rovigo, north-east Italy. As reconstructed it measured 20.98 m overall, had a beam of 5.20 m and a depth of hold of 2.46 m, making it similar but slightly smaller than the vessel described in the Venetian manuscript known as *Libro di marineria*, or *Fabrica di galere*, whose original (the Michael of Rhodes manuscript) dates to 1436.

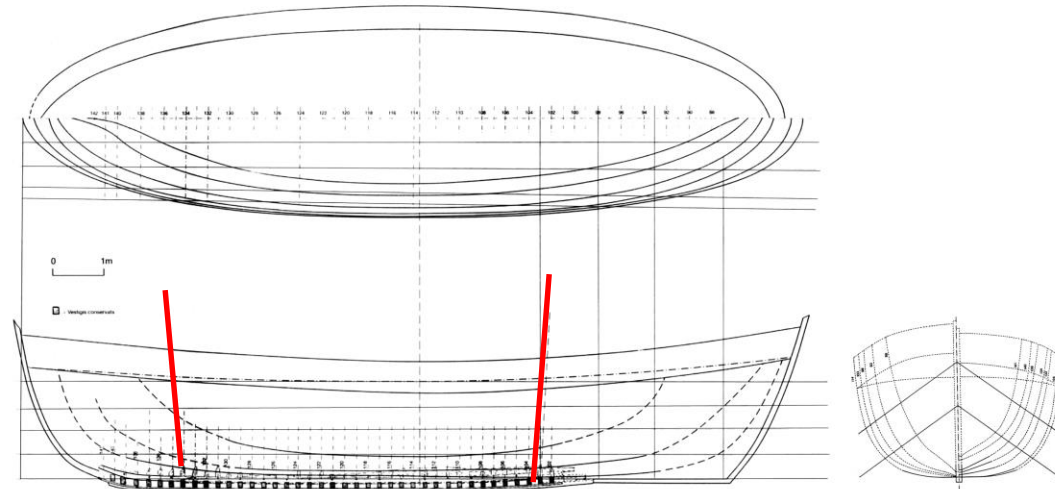
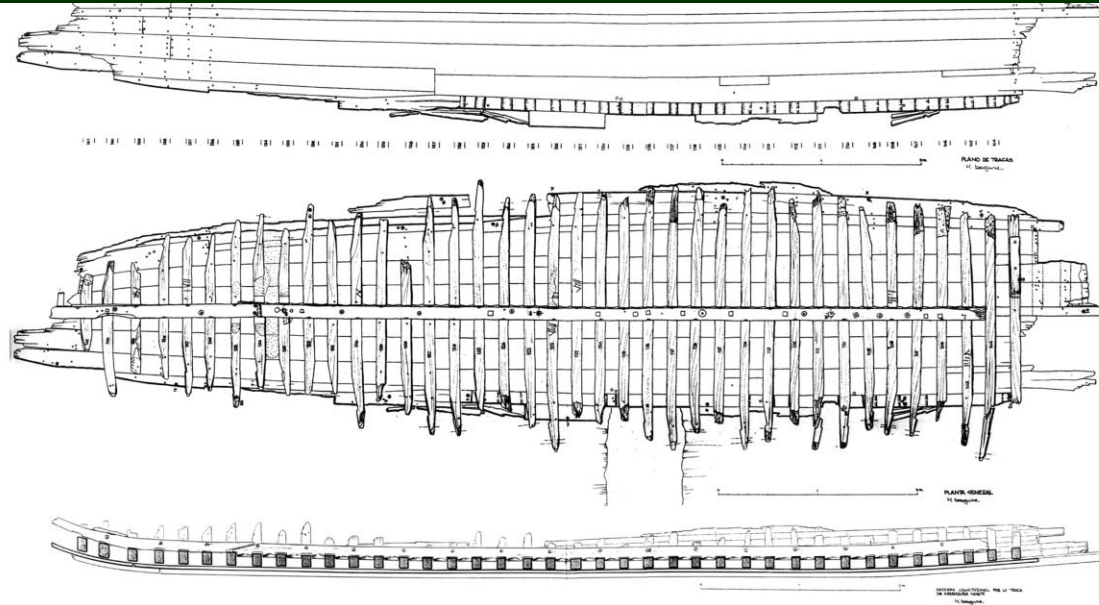


Culip 6, c. 1300

Found in 1987 at Cala Culip, Catalonia.
Excavated by the Centre d'Arqueologia Subaquàtica de Catalunya (CASC) between 1988 and 1990, under the direction of Xavier Nieto Prieto.

The hull was reconstructed by Eric Rieth as a small short-sea trader of 16.35 m length overall, a beam of 4.11 m and a depth of hold on 2.06 m.

The hull weight was estimated at c.16 tons, and the cargo capacity at c.40 tons. When fully loaded it displaced 56 tons.



1320s – Mediterranean Sea

A second mast appears abaft this mast with a lateen sail. This new rigging arrangement – quadra-latina – spreads quickly.

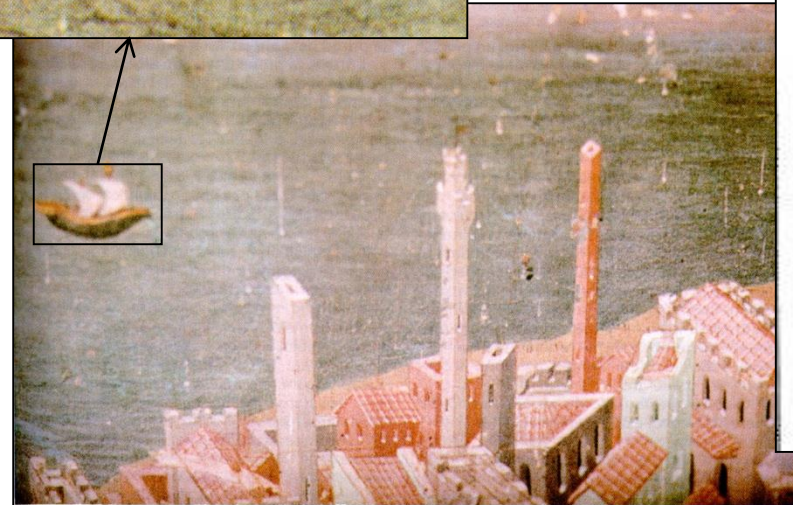
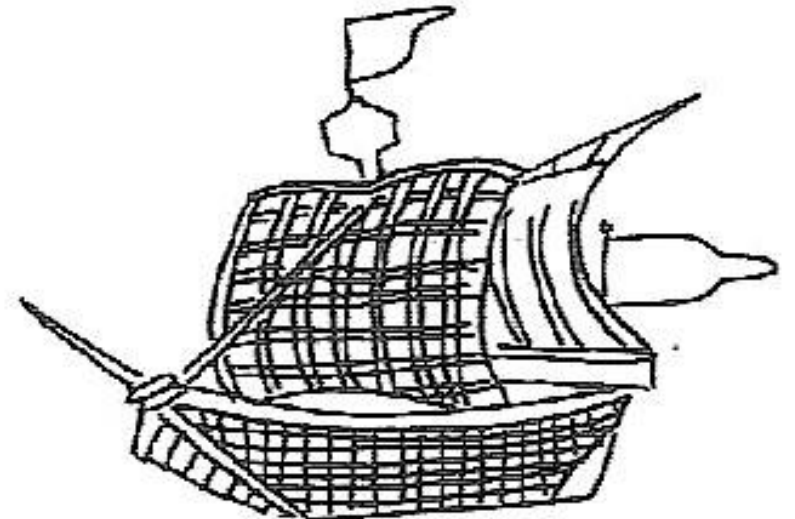
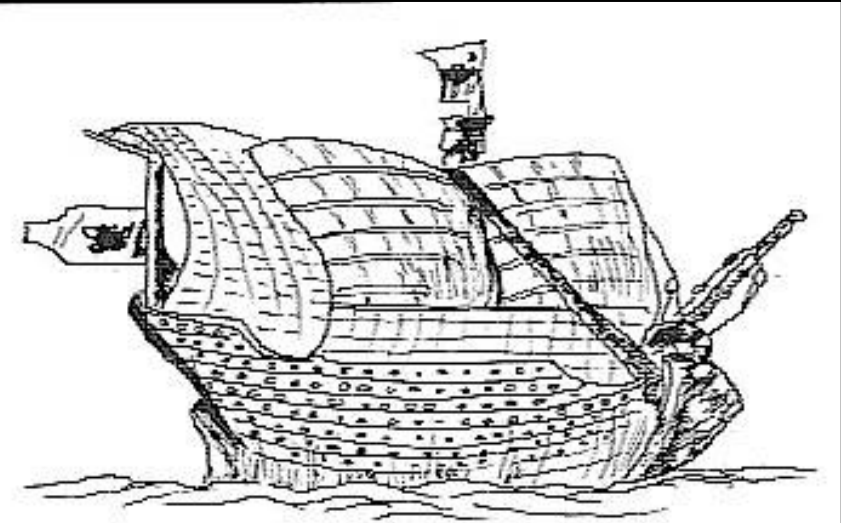


Fig.4 La prima raffigurazione di una nave a velatura quadra latina: dal *Buon Governo* di Ambrogio Lorenzetti.



1320s Mediterranean Sea

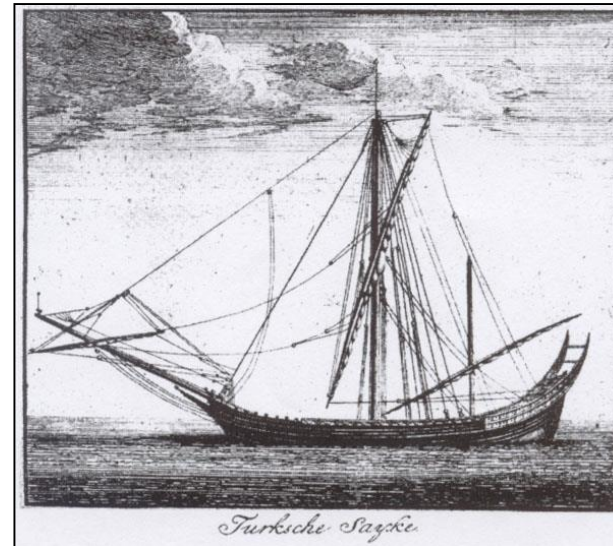
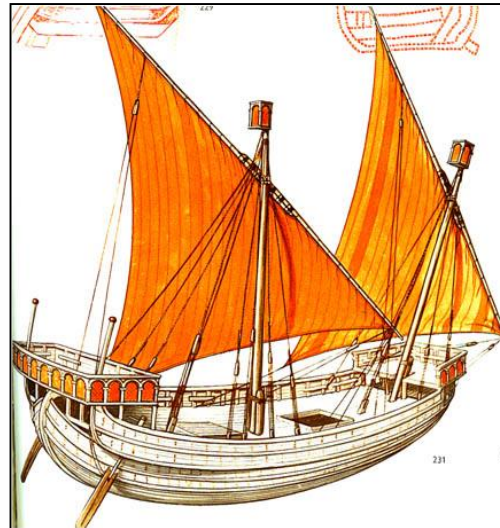
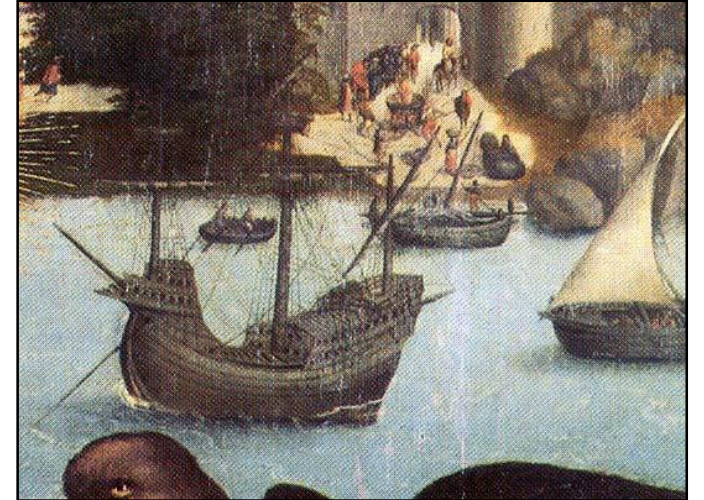
A nave with a *quadra-latina* rigging arrangement in a French, 14th century manuscript.



1400s

Mediterranean Sea

The three-masted, full-rigged ship appeared, matured and replaced part of the merchant craft.



1400s

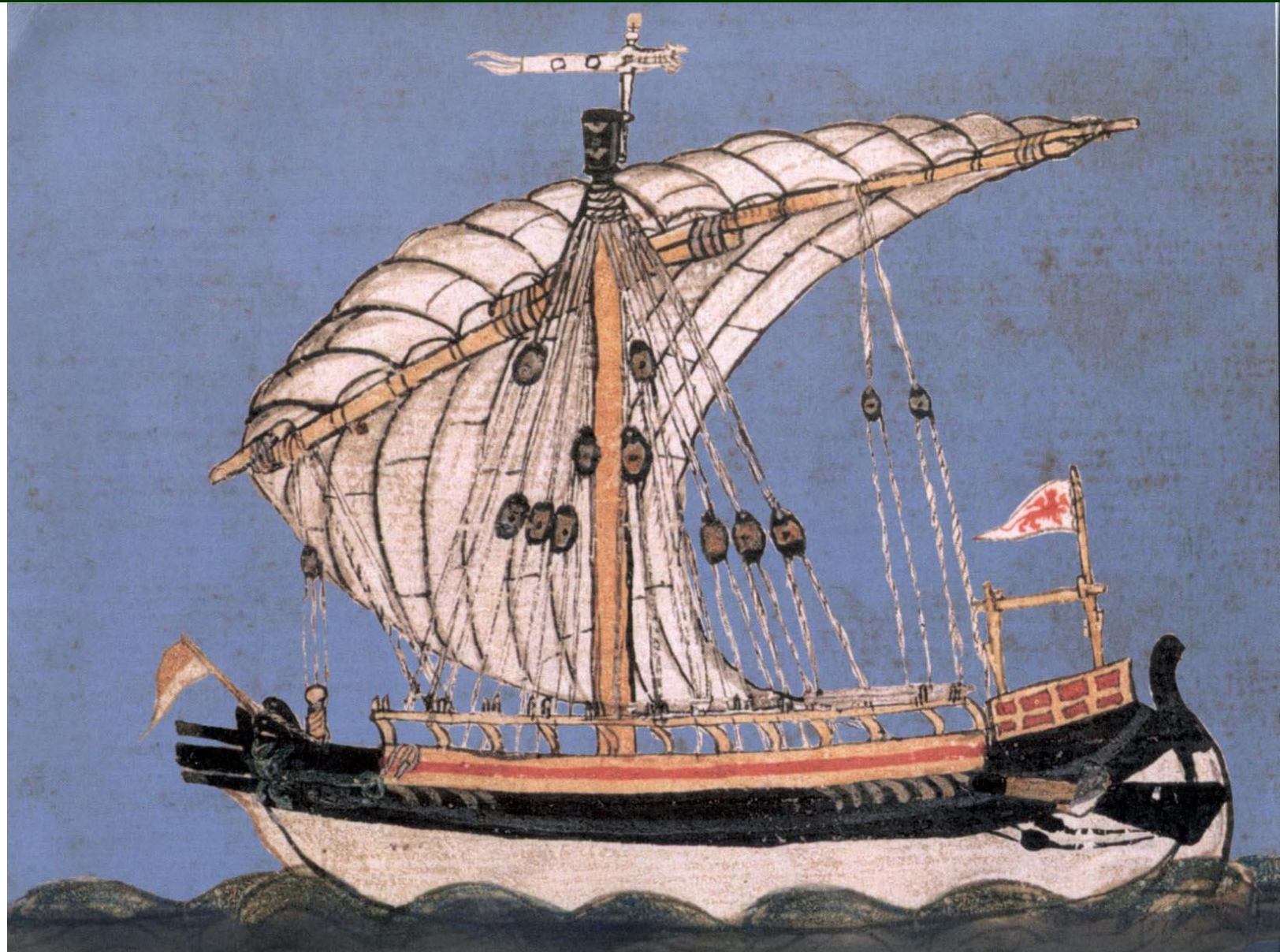
Mediterranean Sea

Galleys

Around 1300 venetian galleys carried about 140 tons of merchandise bellow deck;

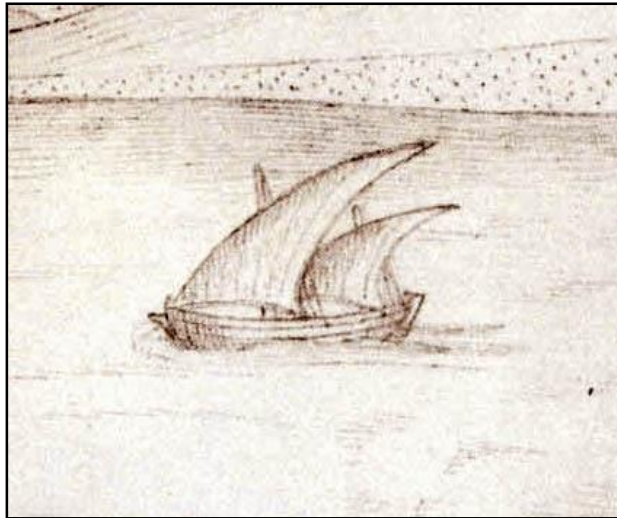
A century later the galleys of Flanders could carry 200 tons bellow deck;

Around 1450 the galleys of Flanders could carry 250 tons bellow deck.

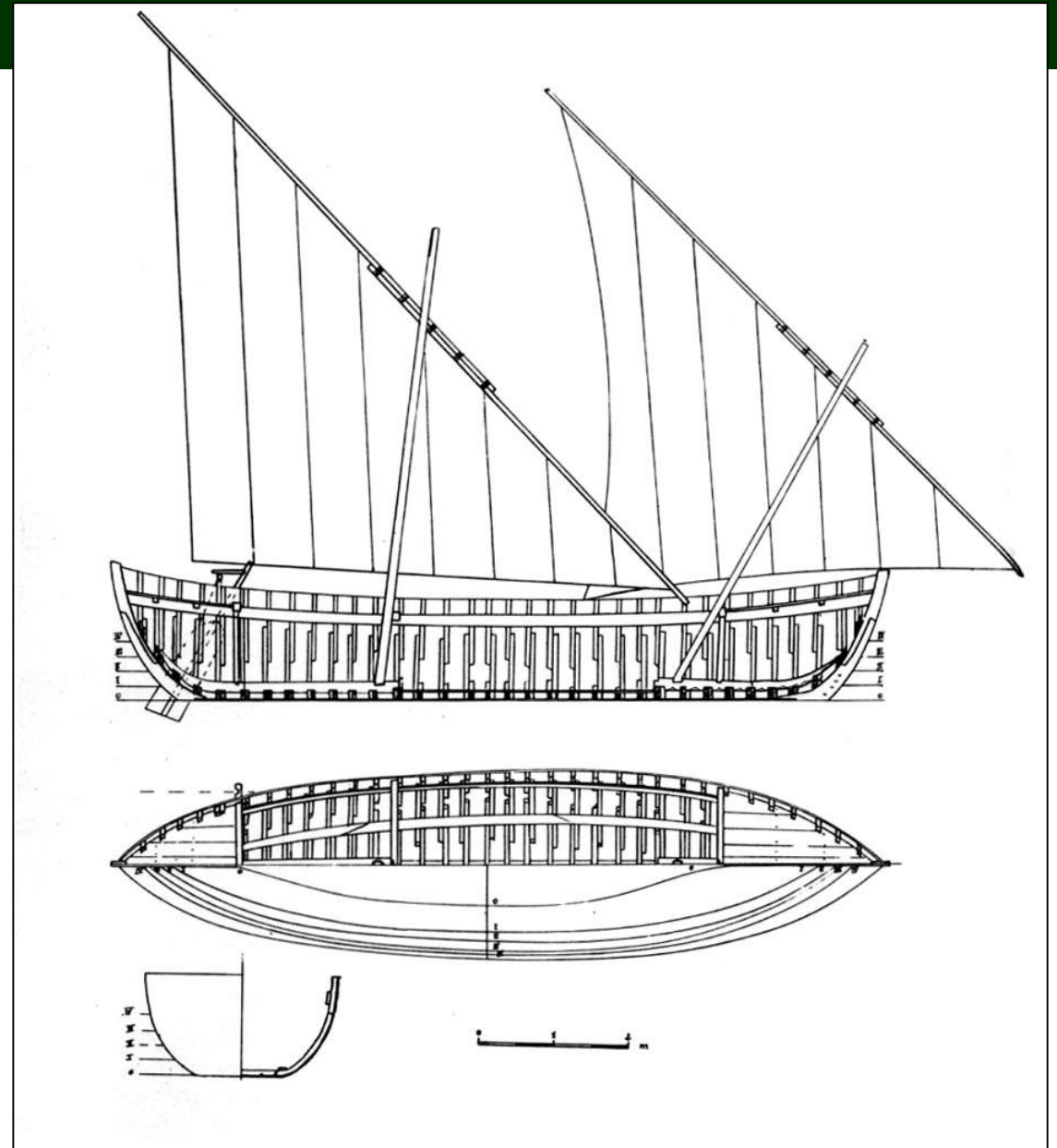


Logonovo, c. 1400

A small two-masted lateener probably engaged in short sea commerce.



Livro das Fortalezas, Duarte d'Armas, c. 1509.



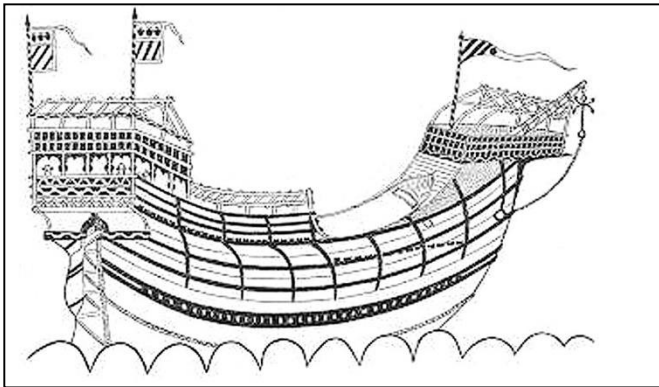
1400s – Mediterranean Sea

Venice

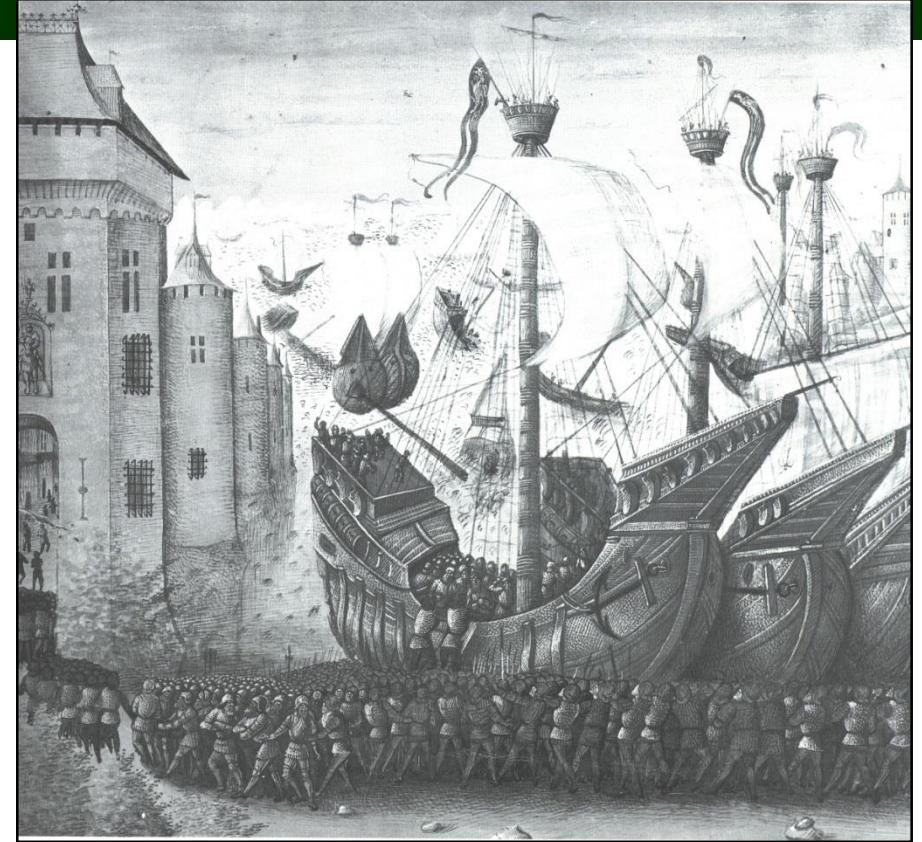
1400 – Larger merchantmen were about 300 to 400 tons.

1450 – References to at least six 600 ton merchantmen on the wine trade route between Crete and England.

1500 – At least one ship built with 1000 tons burden.



Trombetta, 600 tons.



Large ships “Passages Outre Mer” ms., late 15th century.

1400s – Northern Europe

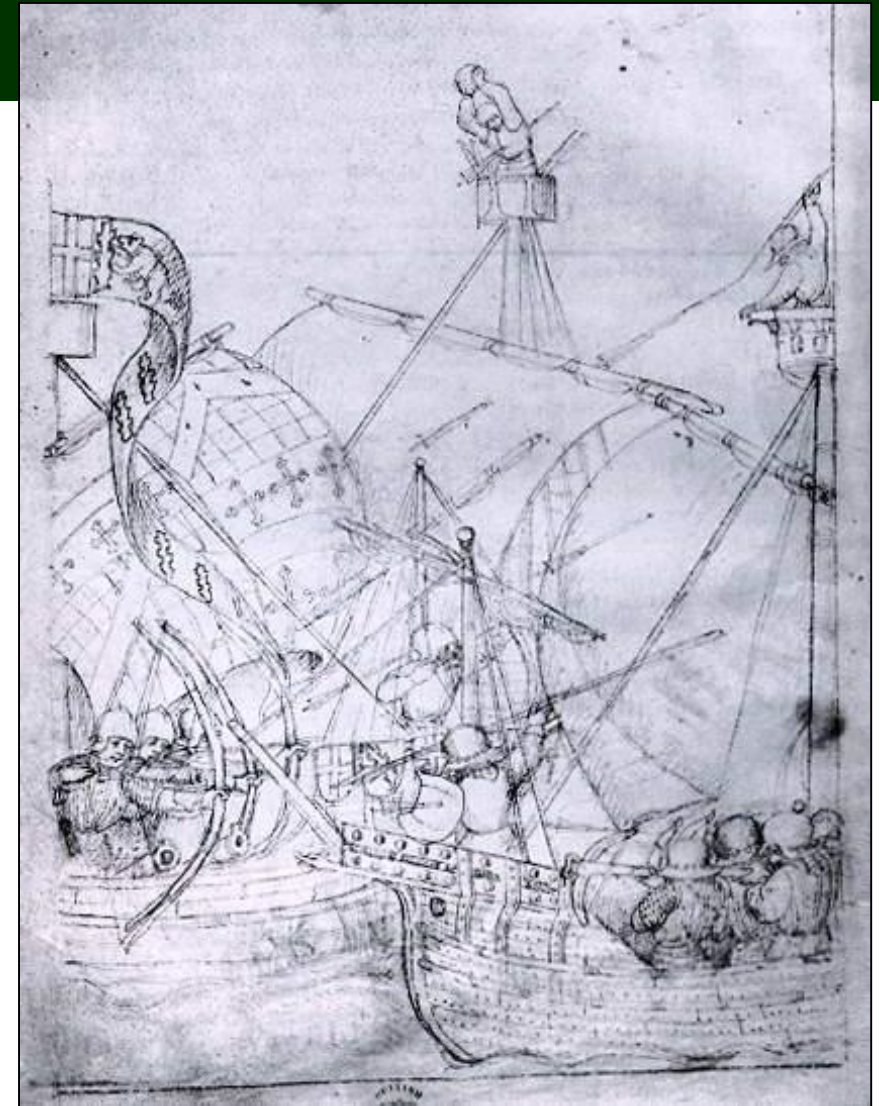
Two masts are mentioned in the North of Europe for the first time (1410, England).

Early in the 15th century (England, first mention of a 3-masted ship and designated *karaque* (an Arab word).

It seems that the larger two-masted *cocche* were called carracks in the north, after 1410.



England.
Four-masted
ship, Warwick
Roll, c. 1485.



England. Battle between carracks. Warwick Roll, c. 1485.

1480-1520

State built warships characterize the 15th century shipbuilding in both the north and south of Europe. Kings, princes and city councils organize state shipyards and legislate shipbuilding.

Exceptional ships are built, with mixed results.



Venice

In 1486 the Venetian Signoria ordered a ship built with 2400 tons.

Around 1500 several Venetian warships were officially rated at 1200 to 1500 tons.

Leonardo Bressan's late 15th century *barze* (1200 tons) were round ships with fine bows (first mentioned in 1492).



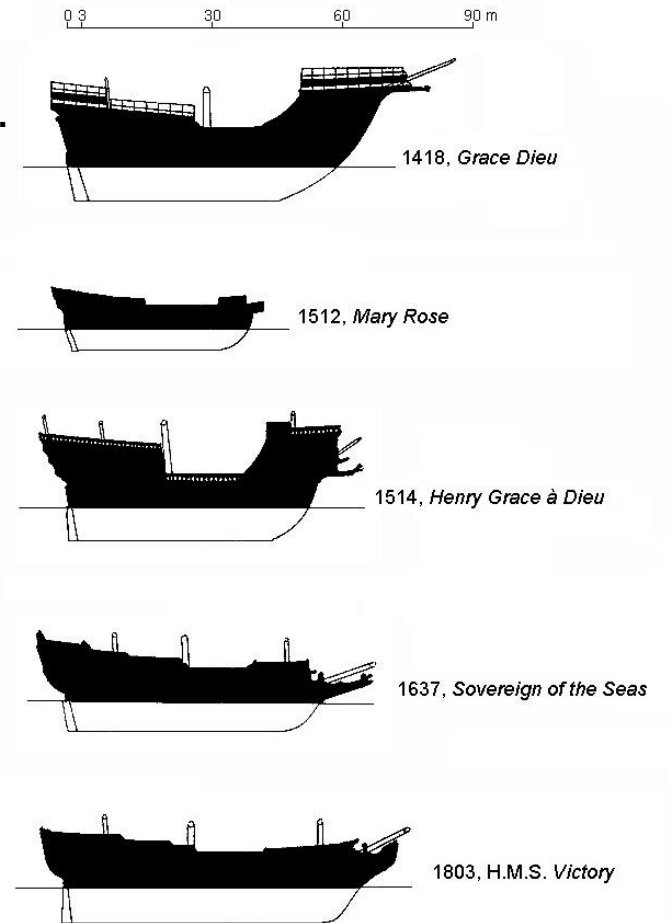
England

In England king Henry V had a 1500 tons clinker ship built in 1418, the *Grace Dieu*.
 Did not go too well...

In 1488 king Henry VII ordered the *Sovereign*, with 1000 tons (rebuilt in 1509 as a carvel ship).

Henry VIII ordered a number of large ships built as well:

- 1510, *Gabryell Royall*, 700 tons;
- 1512, *Mary Rose*, 600 tons;
- 1514, *Great Henry Grace à Dieu*, 1,500 tons.



Portugal

In Portugal king John II ordered in the 1490s a ship with 1000 tons built, the *S. Cristóvão*.

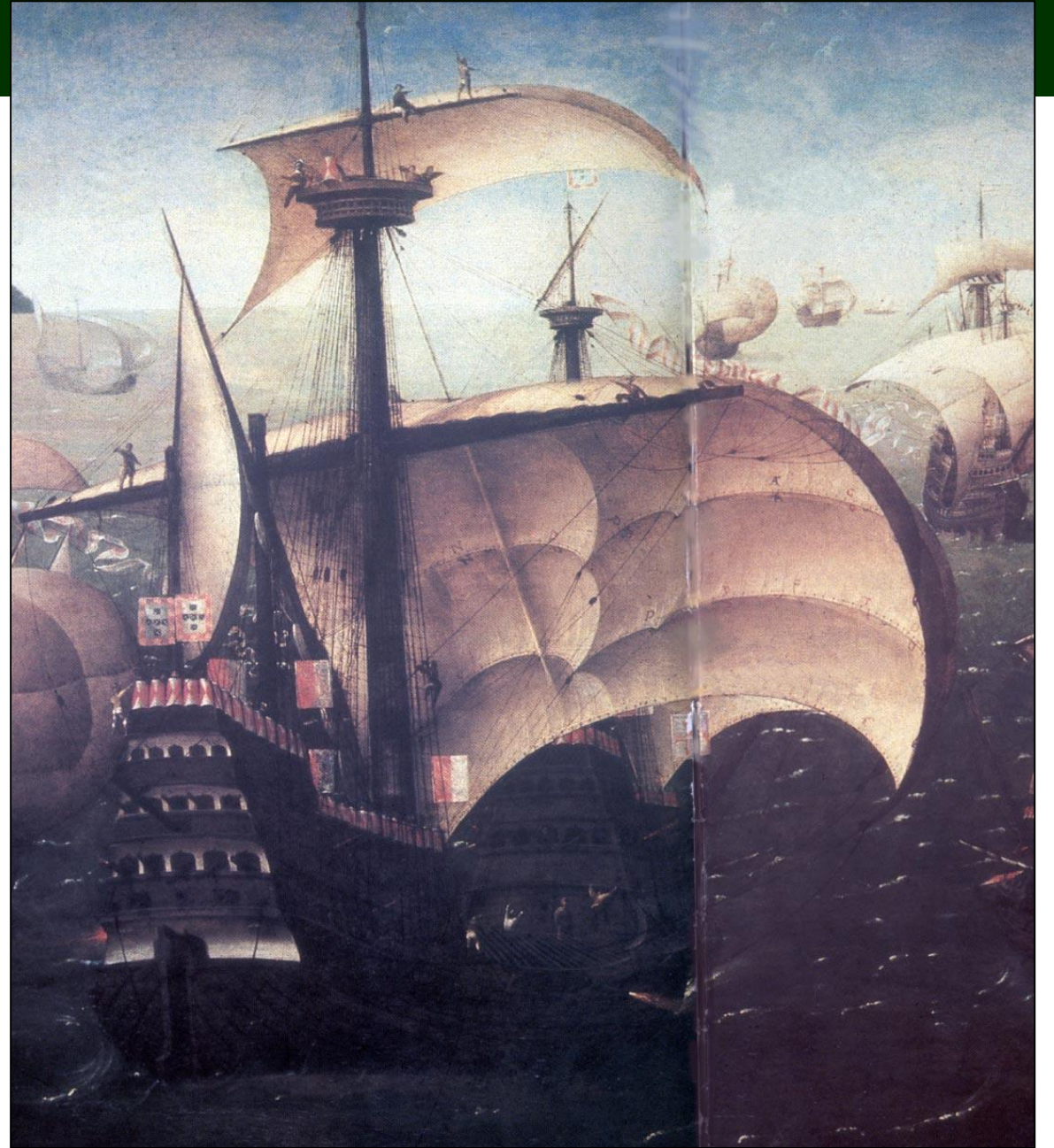
In 1481 two large *urcas* (*Charruas*) went to Mina with another 10 ships and other vessels, to build the castle, carrying 500 soldiers, 100 stone builders and carpenters...

In 1512 The *Sta. Catarina do Monte Sinai* was built with 700 or 800 tons.

In 1535 the galleon *S. João* was built, mounting perhaps as many as 80 guns.

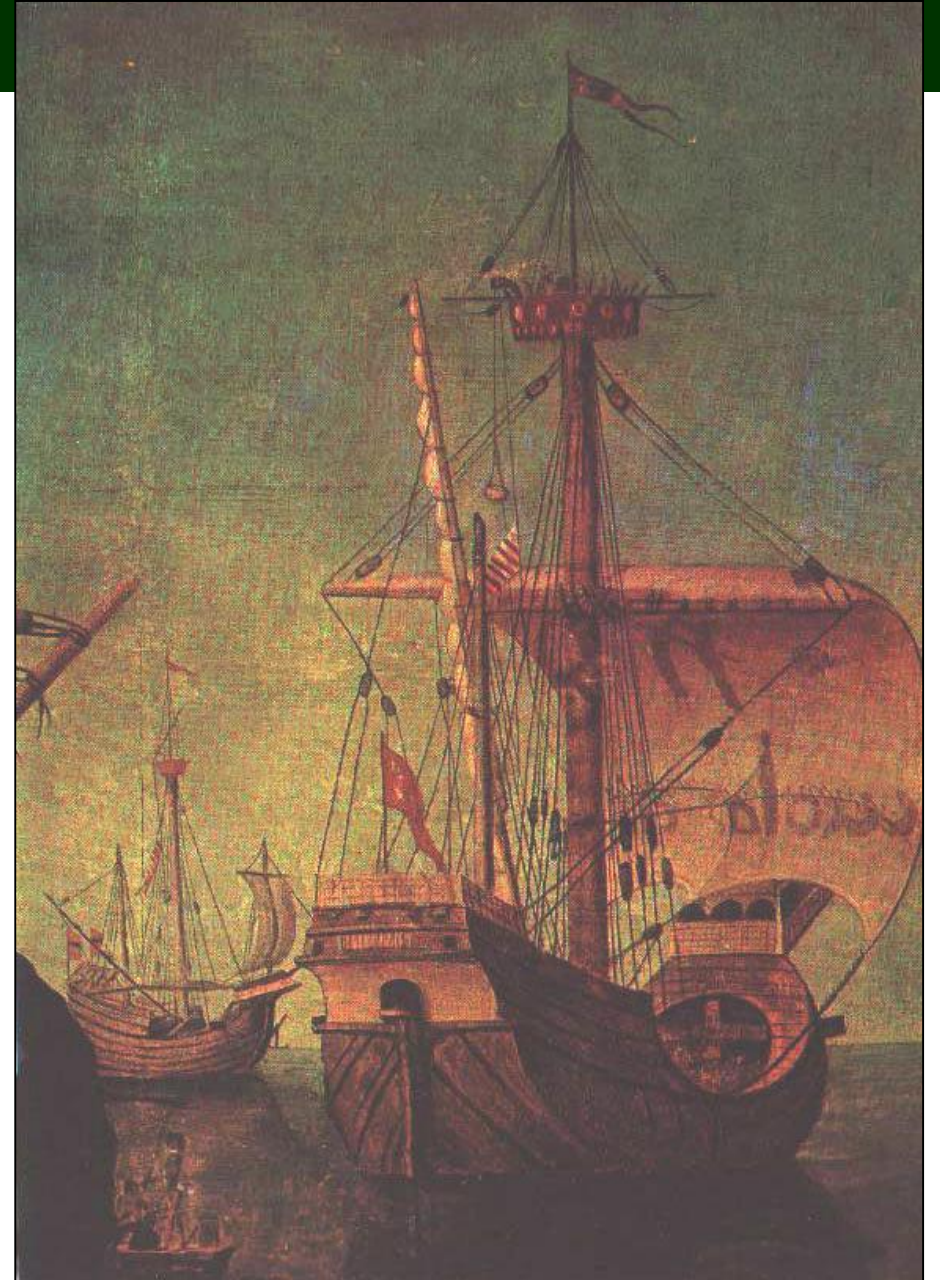


*Sta. Catarina do
Monte
Sinai, 1527*

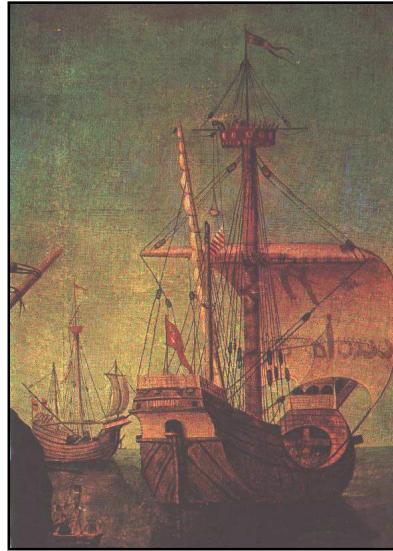


Iconography

The quality of the representations of harbors and ships improves in the last decades of the 15th century, and ships even become the main object of illustrations (as opposed to objects in the background of religious paintings).



Even when they are mere objects in the background of religious paintings, the quality of their representations is often exceptional.



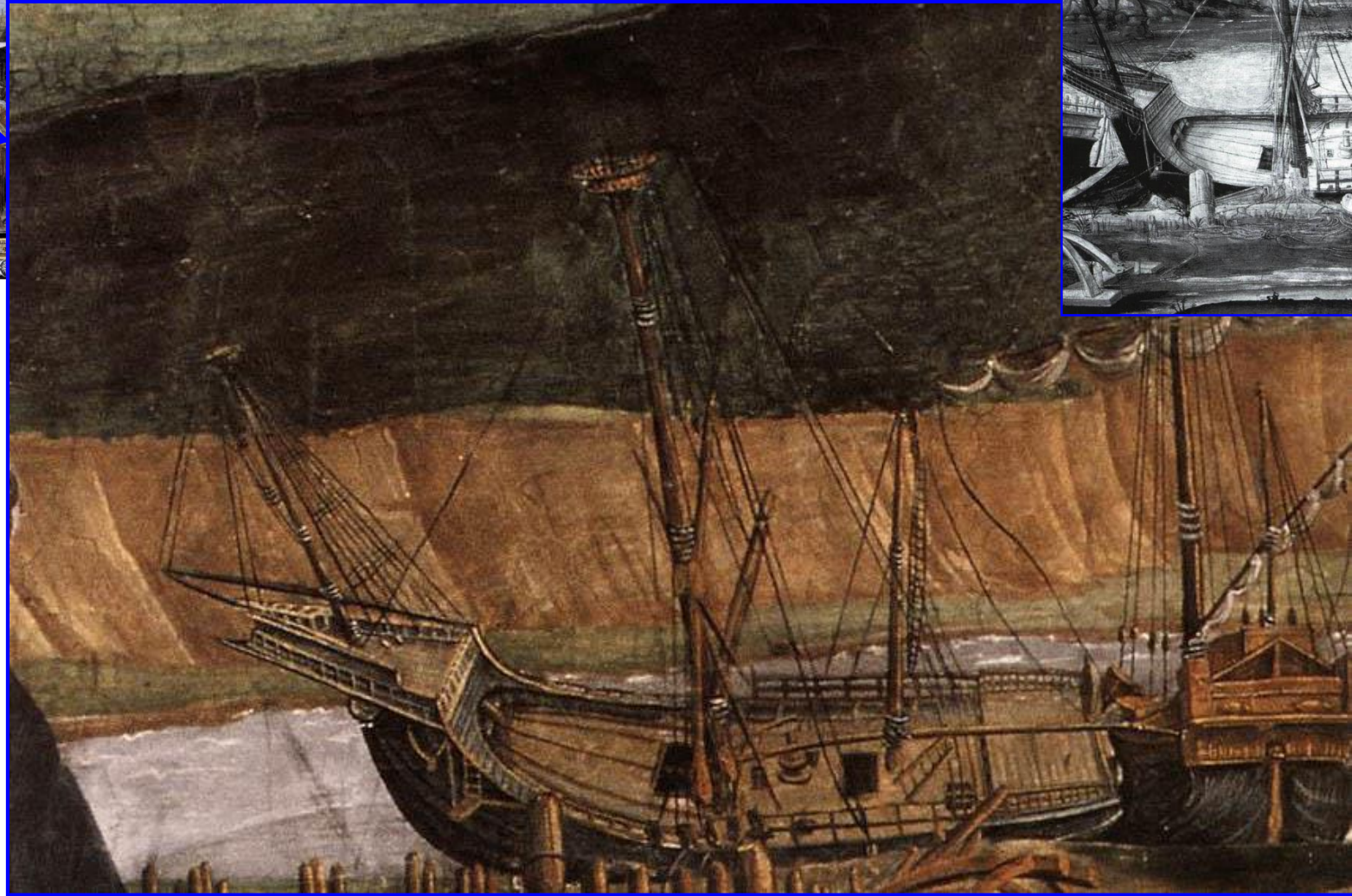
Vittore
Carpaccio,
1490s.



Shipbuilding in Europe



Sandro Botticelli, 1480s.



Shipbuilding in Europe

Sometimes some of these ships look rather odd to us. Domenico Ghirlandaio, late 15th century.



Shipbuilding in Europe

In the last decades of In 1500, one year after the arrival of Vasco da Gama in India, **Jacopo de Barbari** made a view of Venice that is exceptional among the hundreds of views of cities made in the 16th century for the precision of its details. It is 2.818 x 1.345 m and was carefully drawn.



Its ships – analyzed in detail by Lucien Bash – are exceptionally detailed and are probably a perfect snapshot of a commercial harbor in 1500 and give an idea of the diversity of the vessels in use at the time:



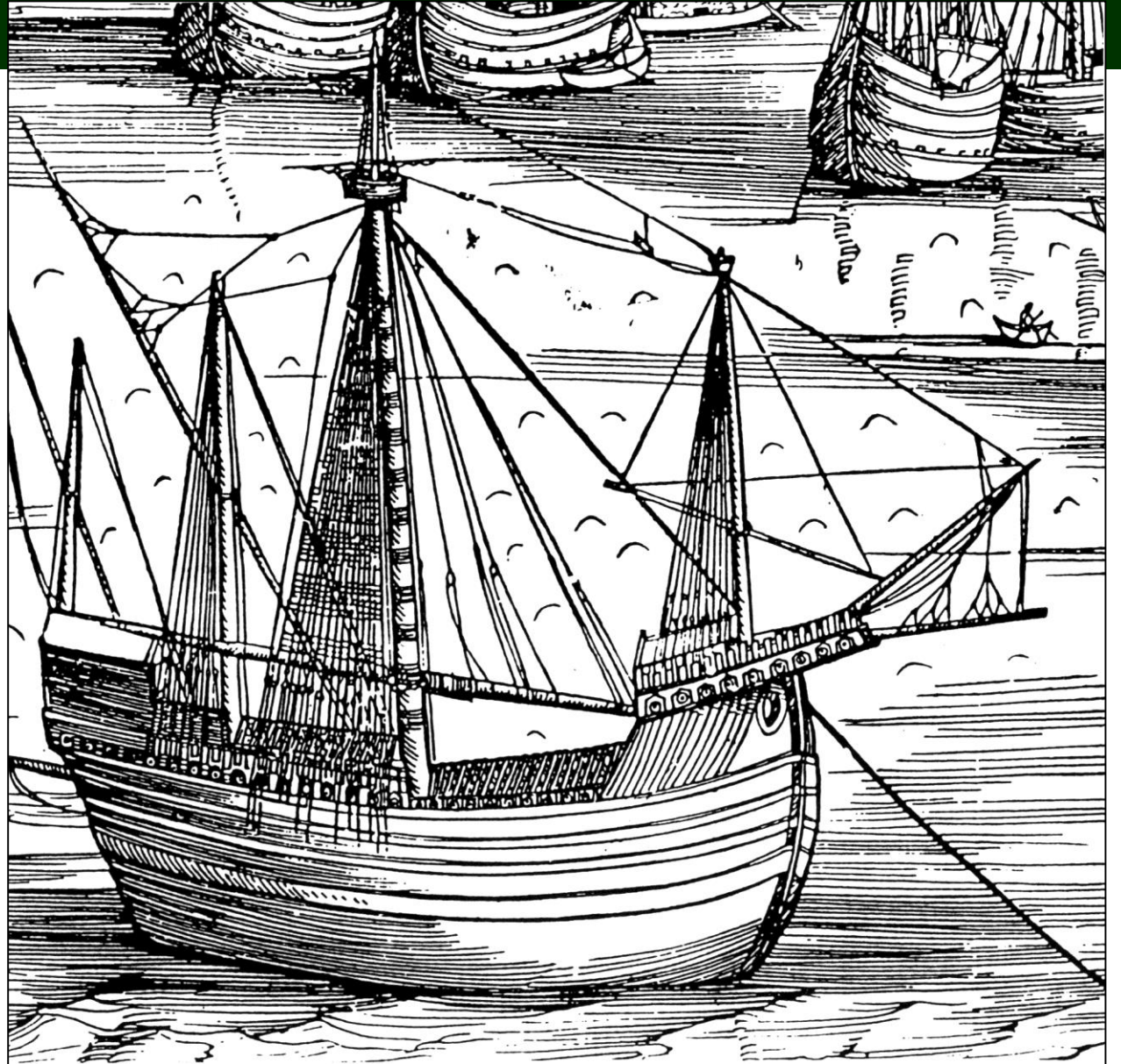
Beak heads



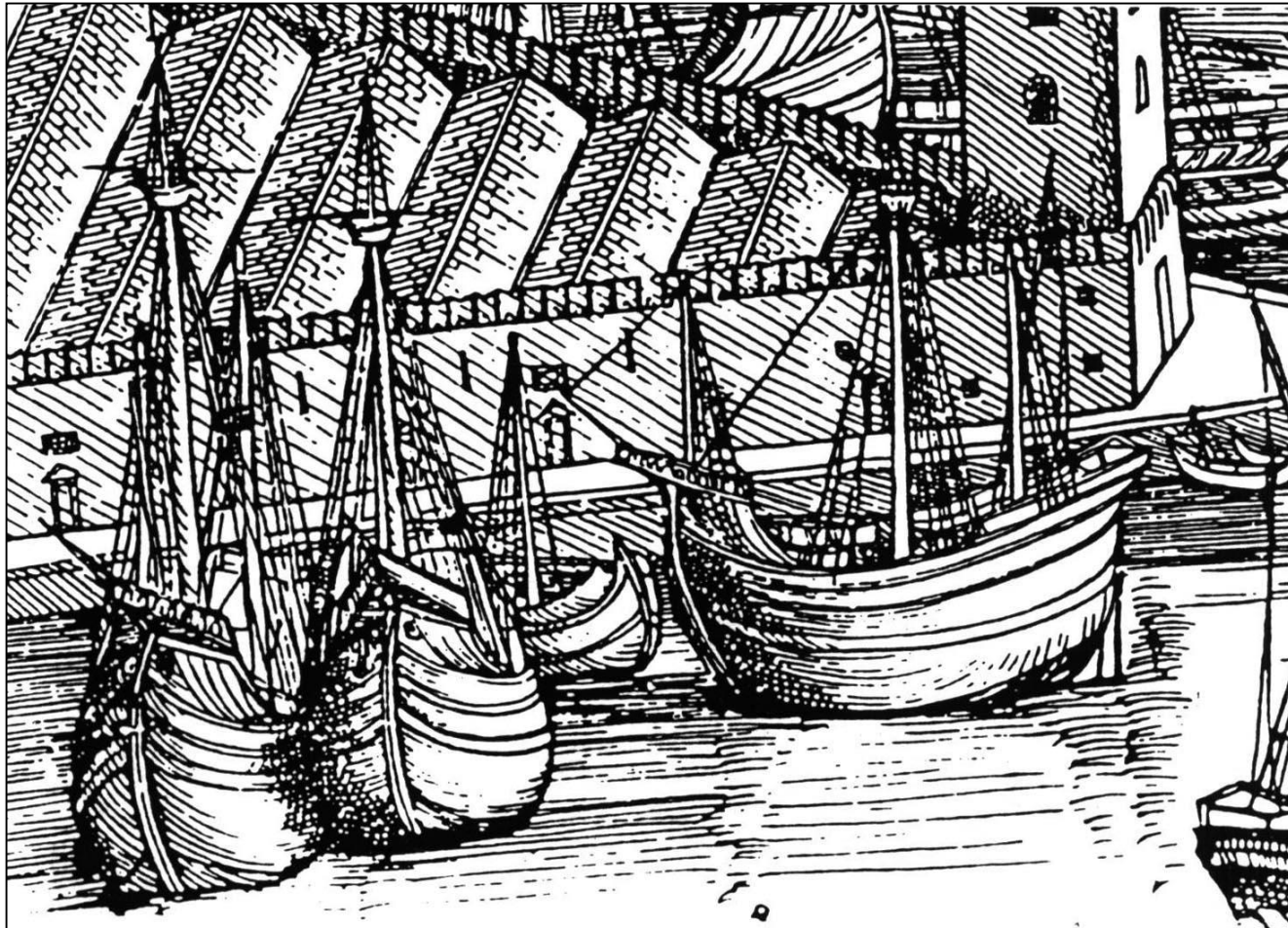
Particular bow w/ straight stem post

Several different vessels.

Four-masted carracks

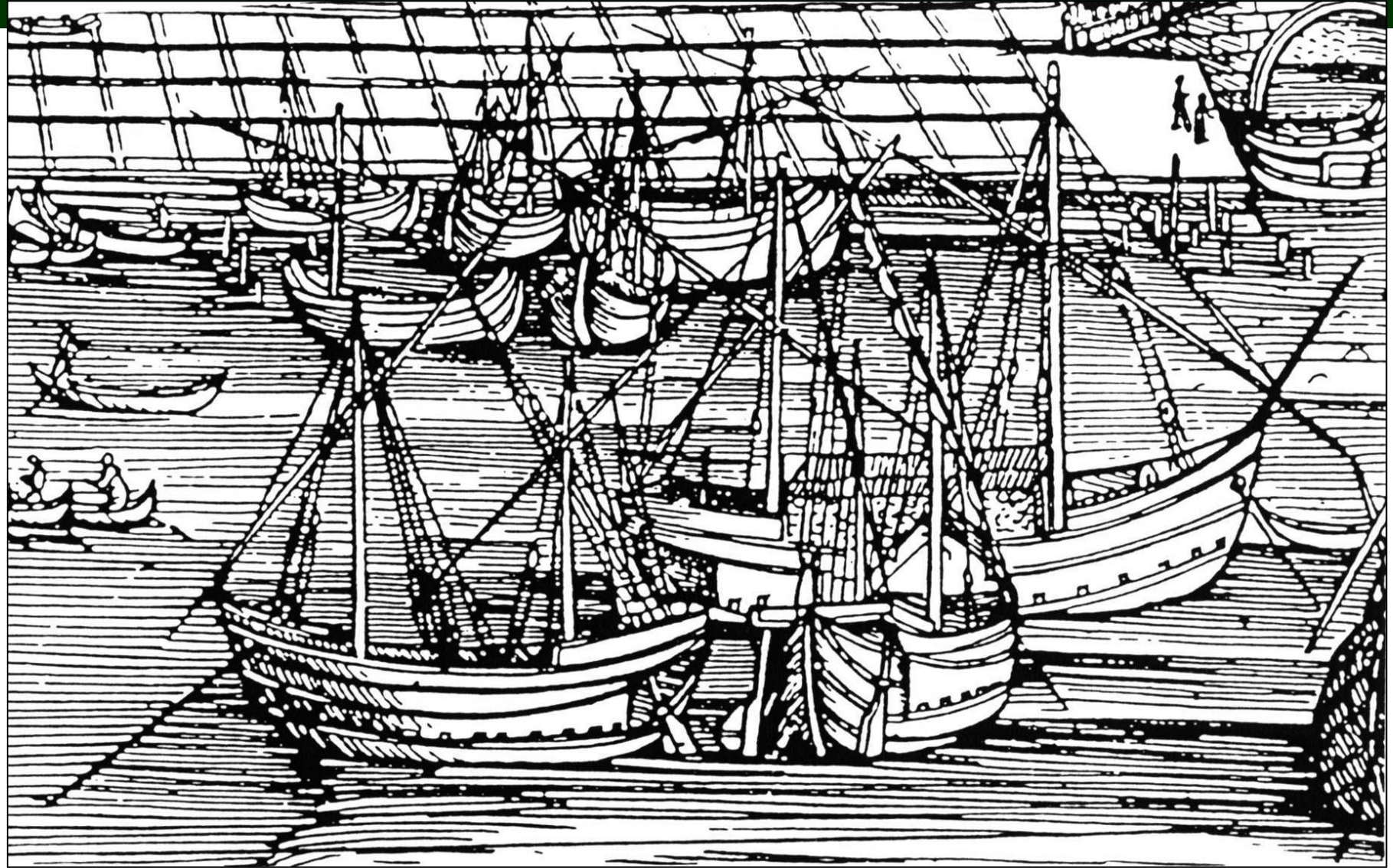


Shipbuilding in Europe

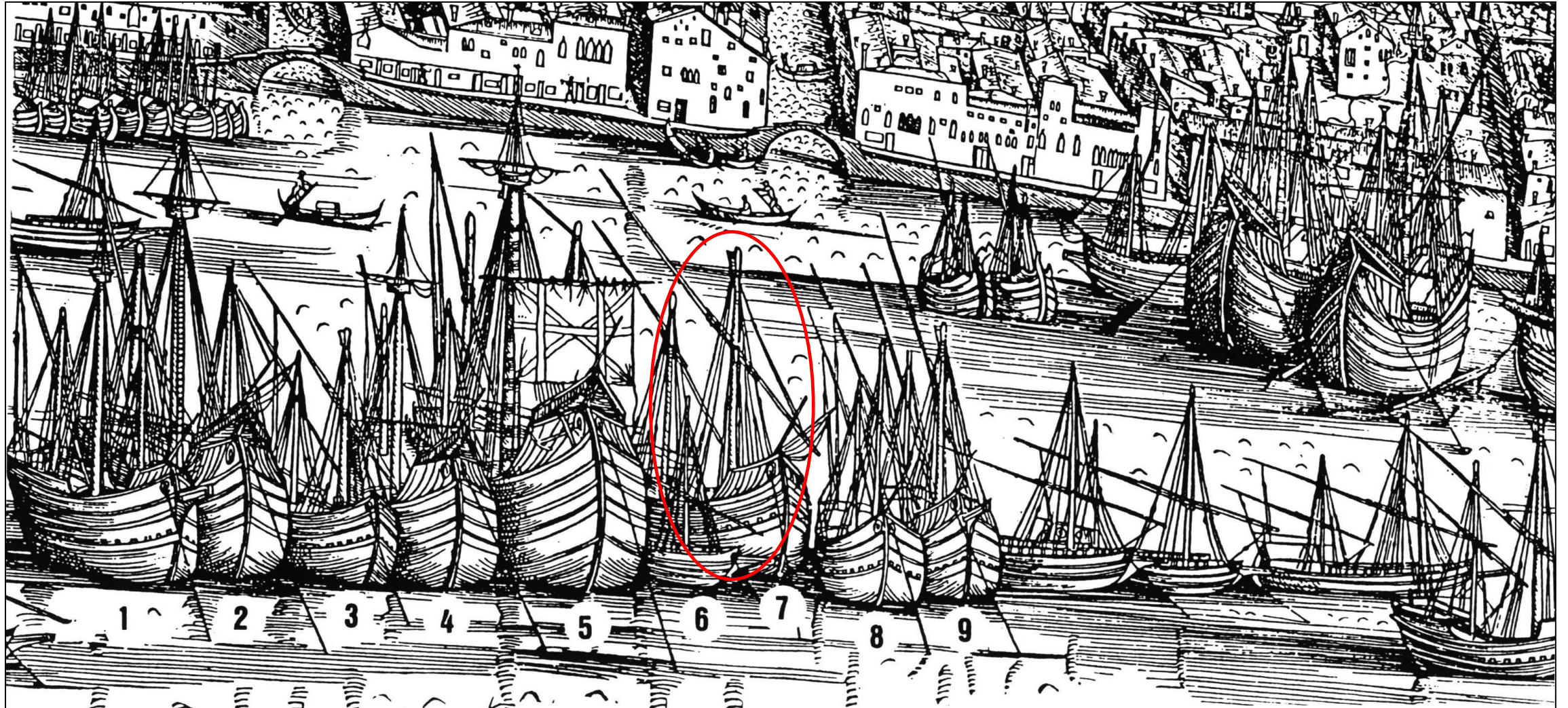


Three-masted carracks.

Shipbuilding in Europe

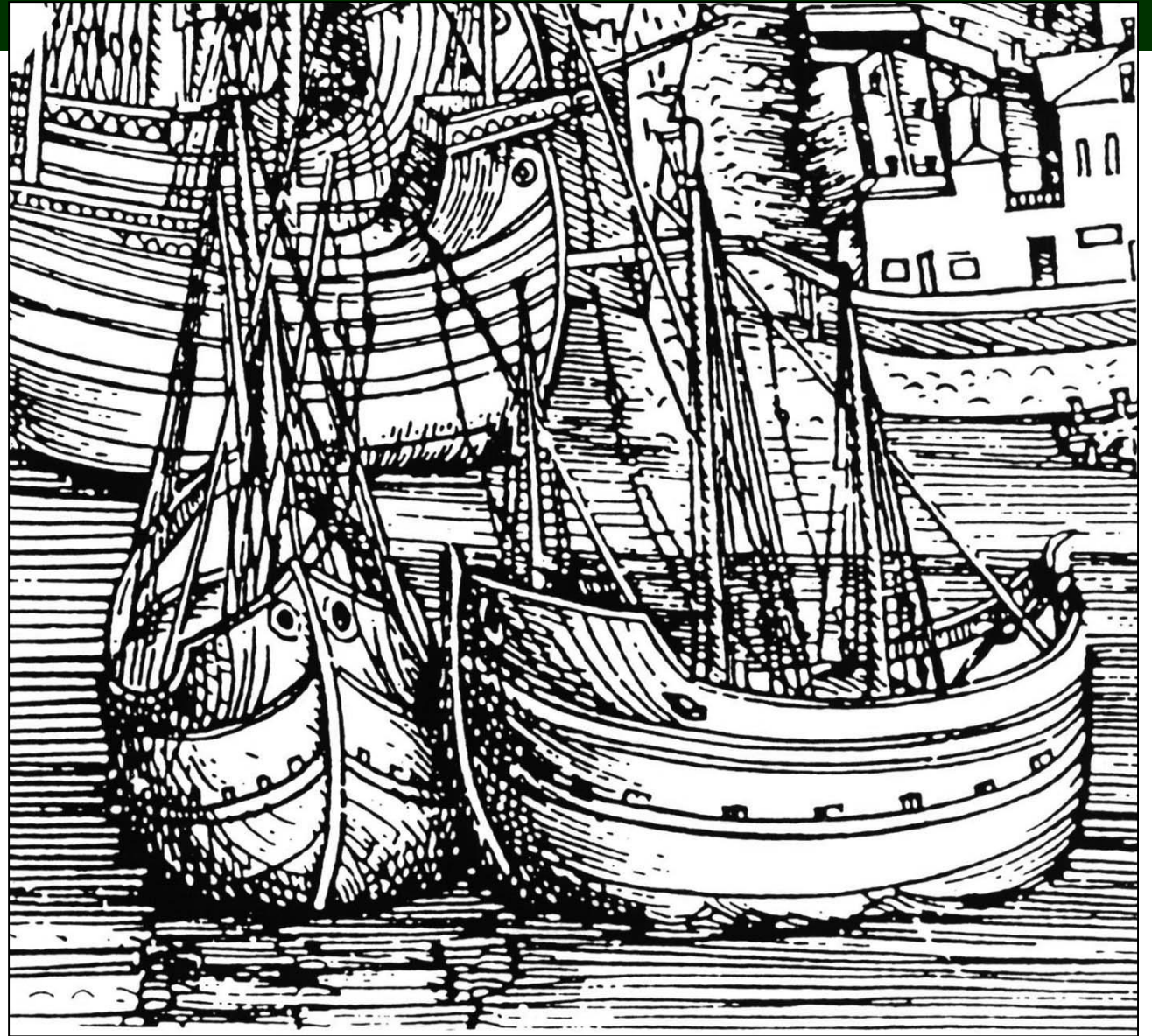


Two-masted lateeners with side rudders.

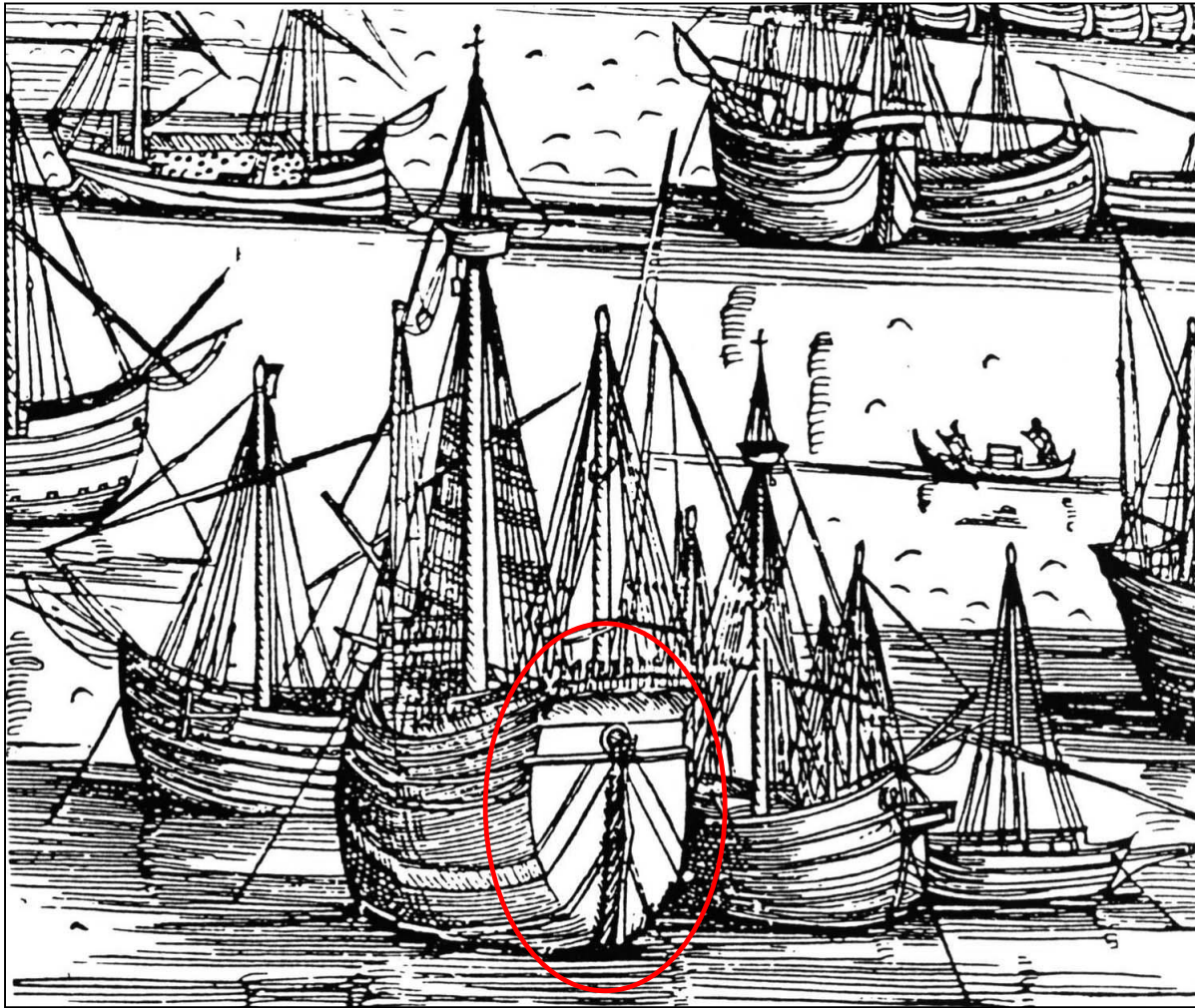


Two- and three-masted lateeners (with central rudders?): caravels?

Two- and three-masted lateeners with central rudders: caravels?



Shipbuilding in Europe

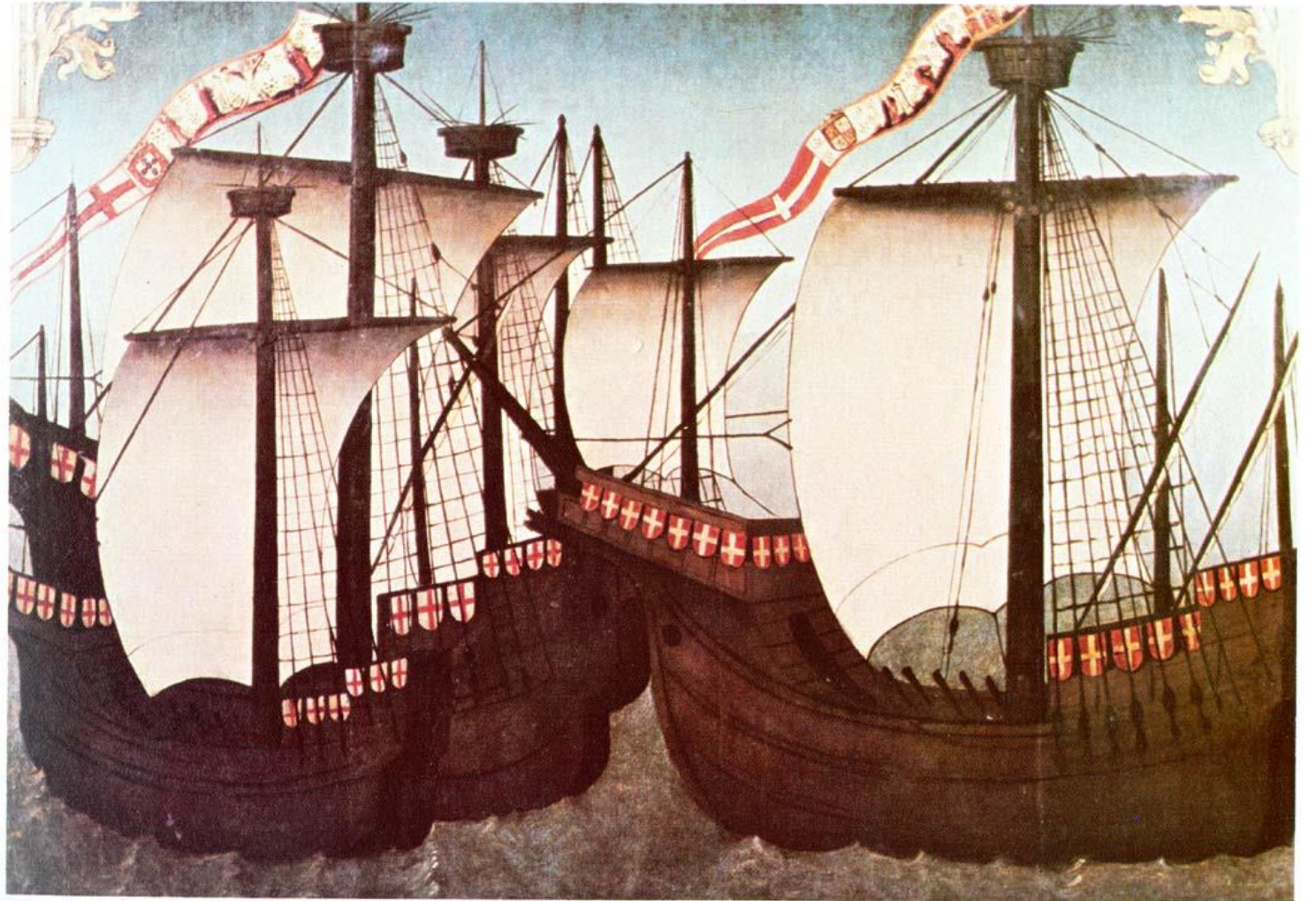


Ships with stern panels.



Stern panels appeared in the late 15th century.

The earliest representation is a Basque painting at the Zumaya church, dated to around 1475.



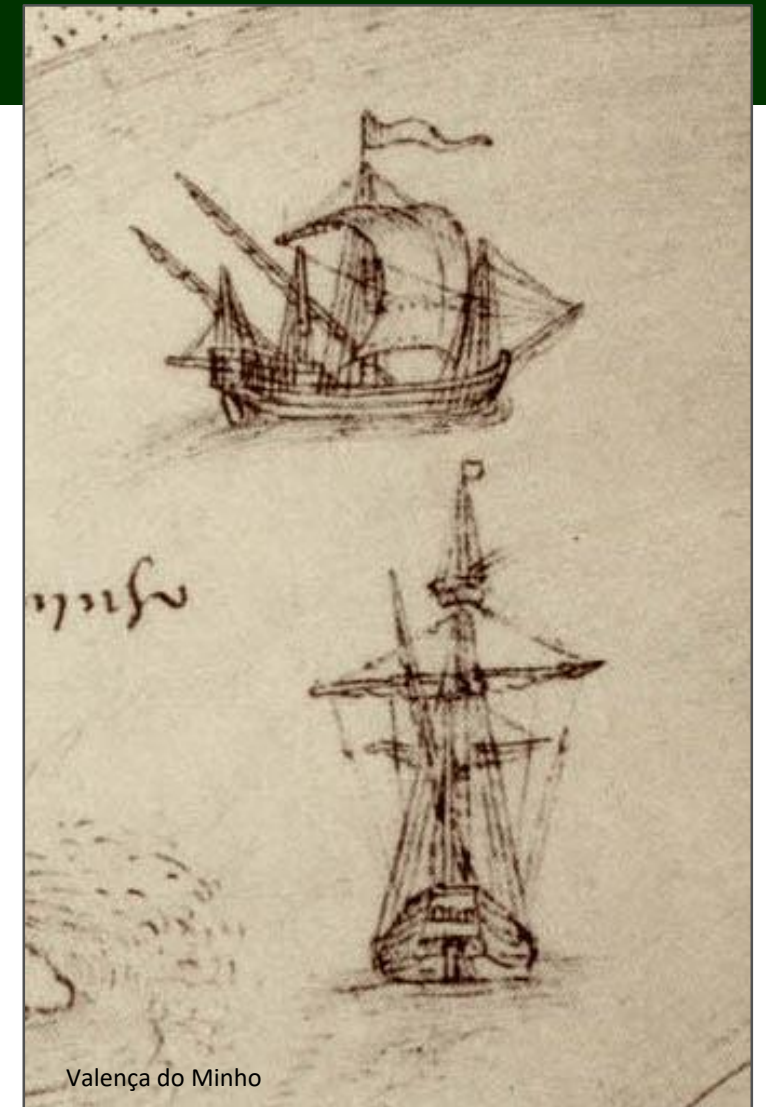
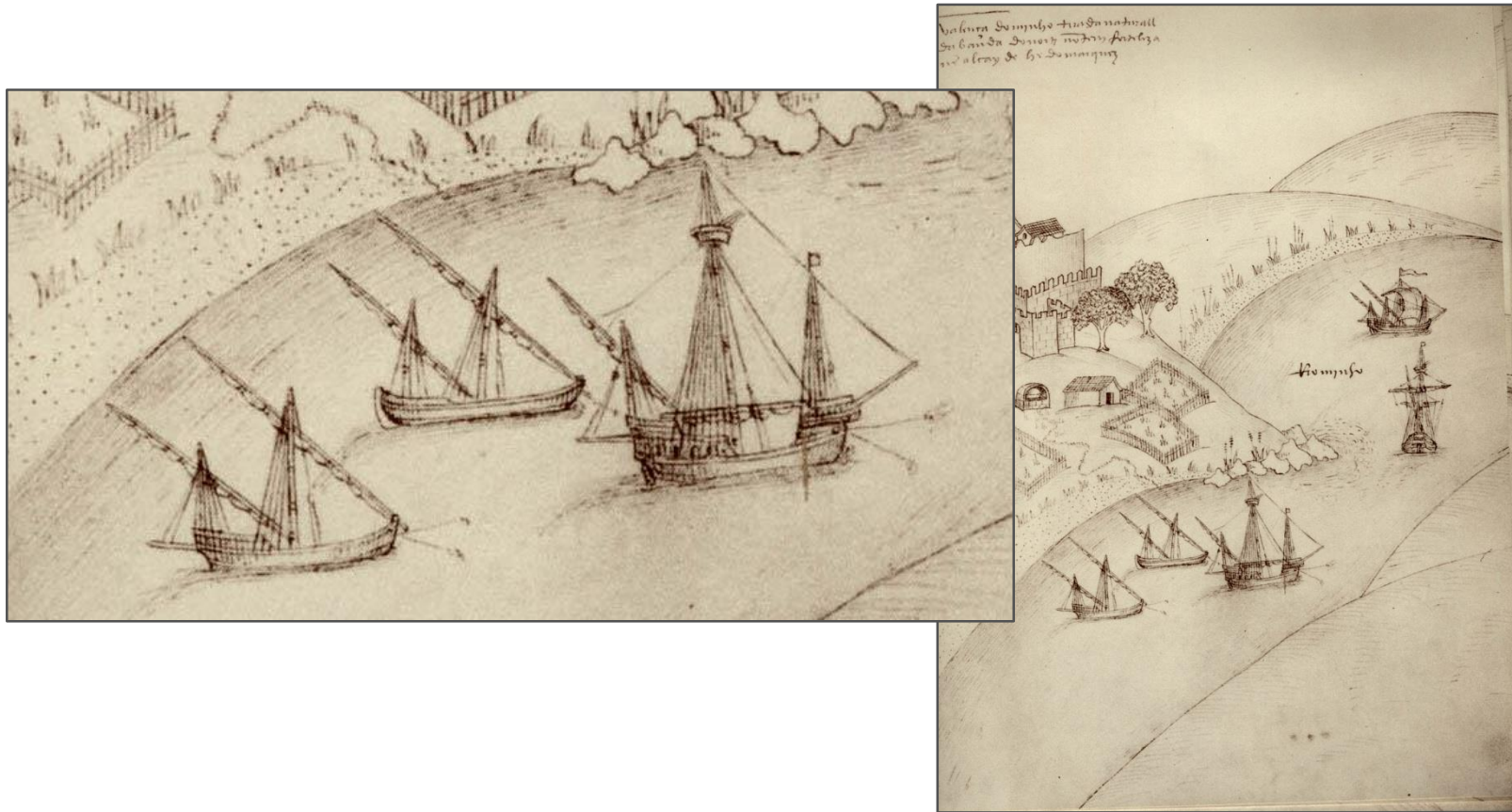
Naos de la iglesia de San Pedro. Zumaya.



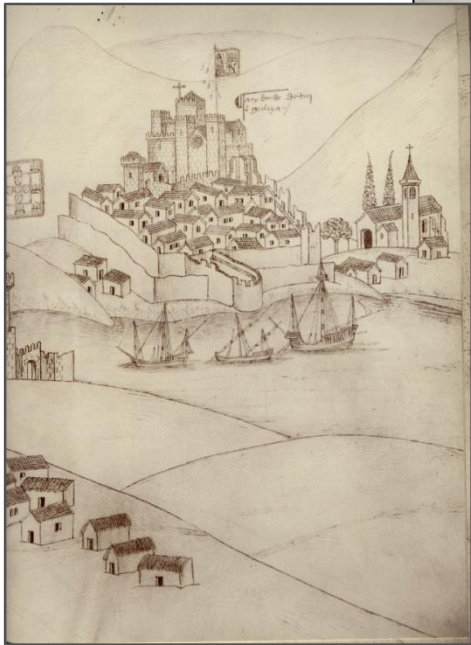


Shipbuilding in Europe

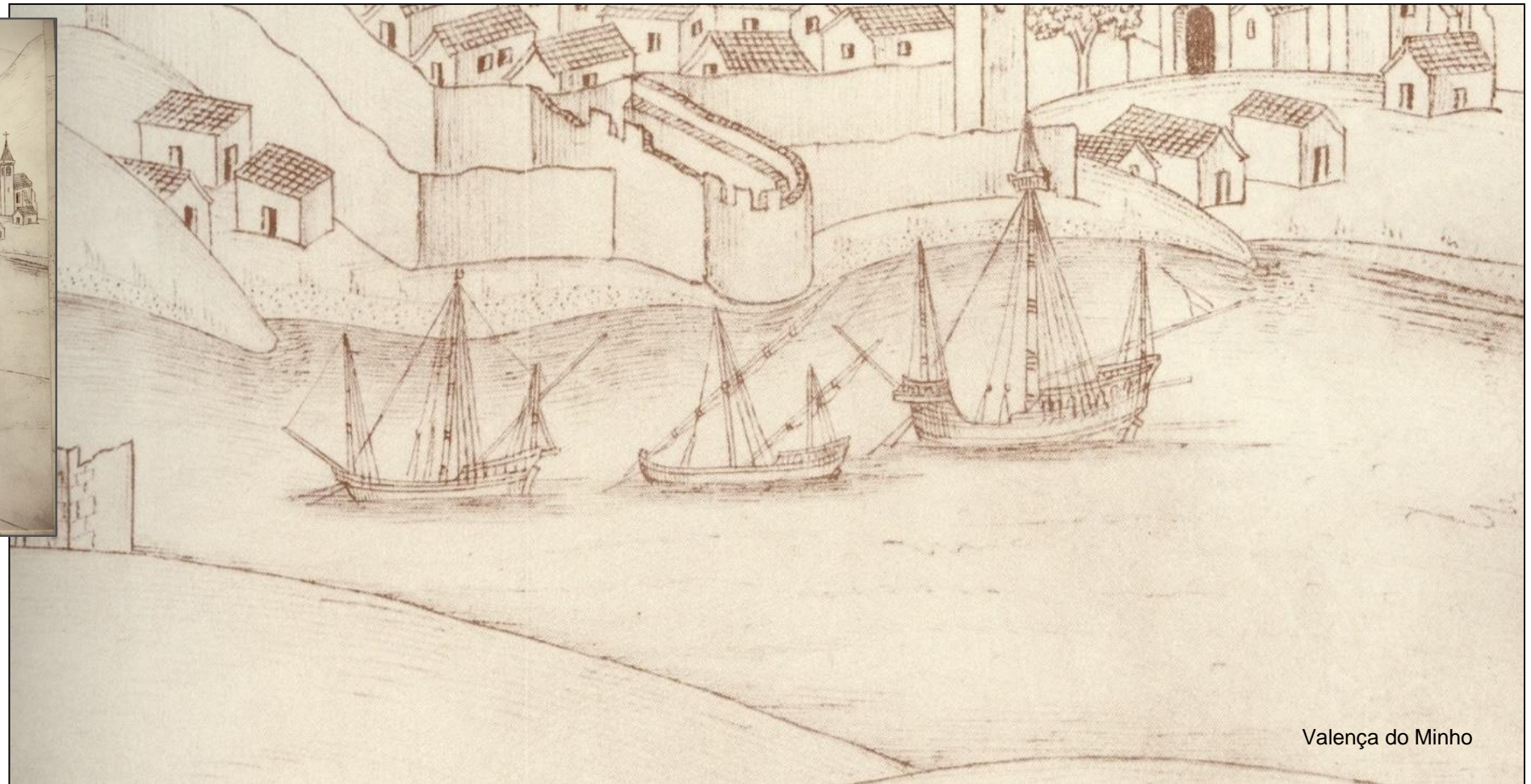
Portuguese iconography dating to the very early 16th century shows vessels that probably resembled those of Vasco da Gama's three voyages.



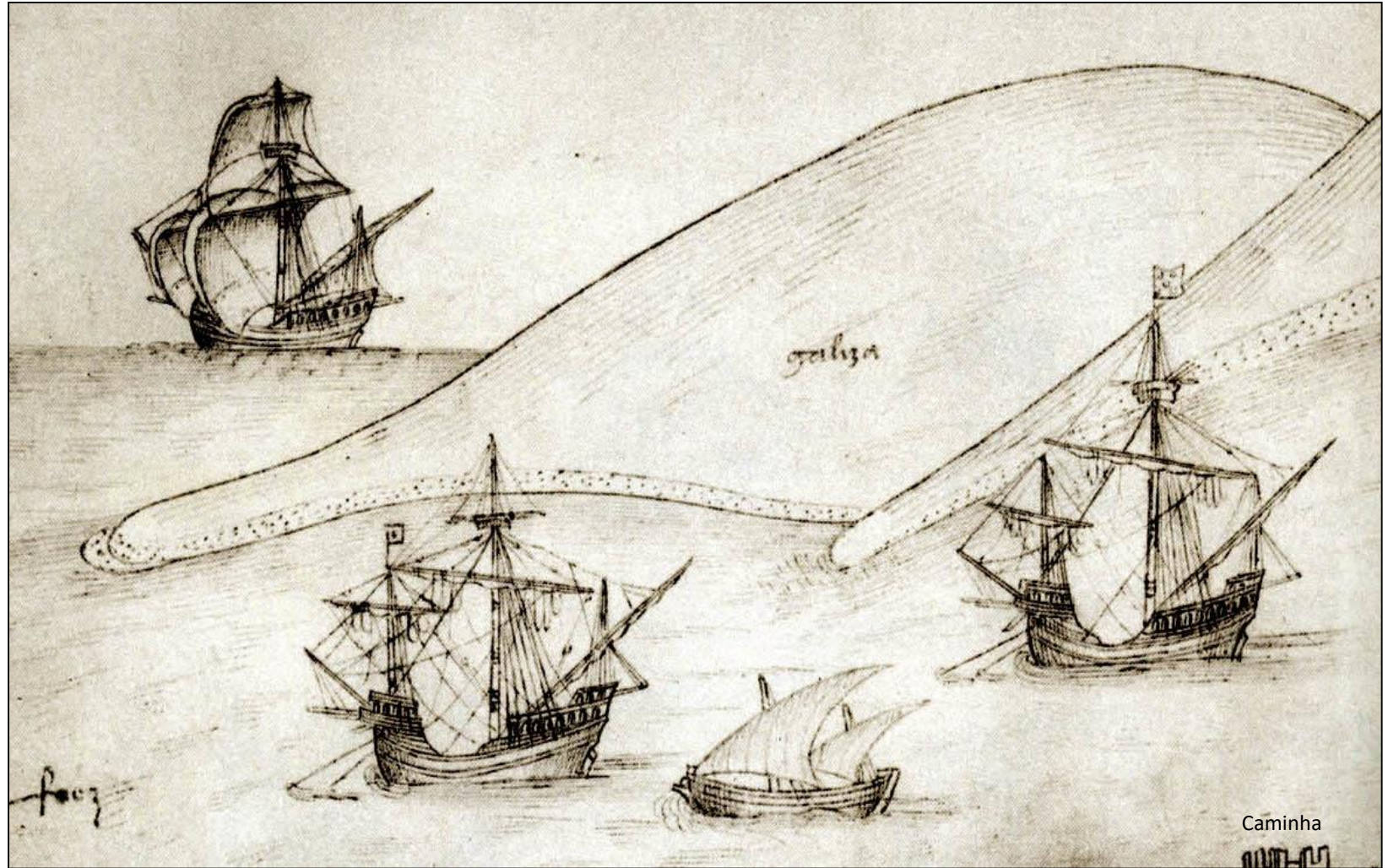
Livro das Fortalezas de Duarte d'Armas, c. 1509.



Livro das Fortalezas de Duarte d'Armas, c. 1509.

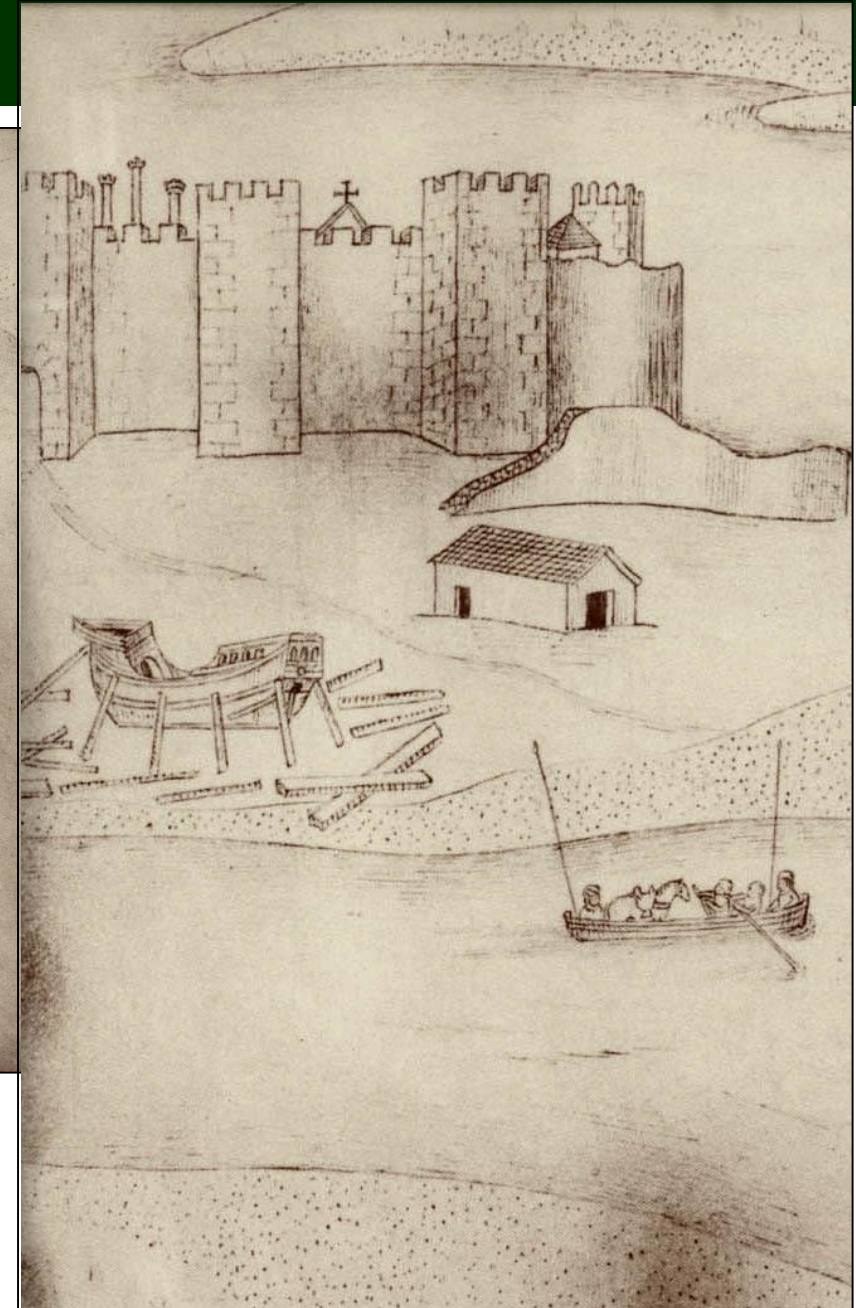
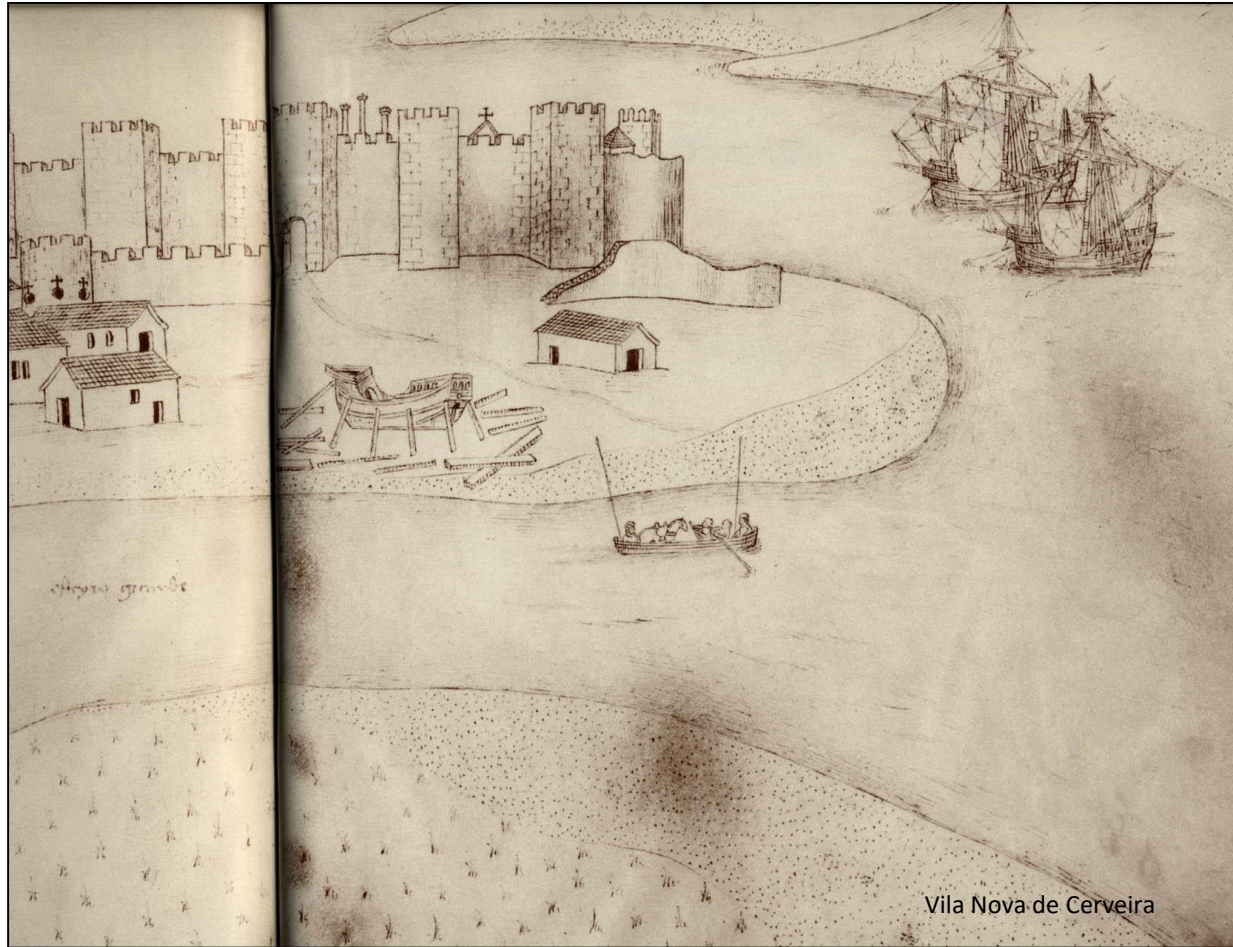


Valença do Minho



Livro das Fortalezas de Duarte d'Armas, c. 1509.

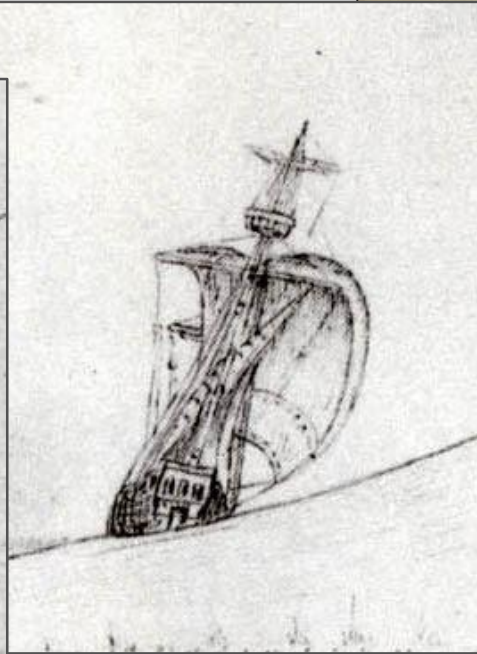
Shipbuilding in Europe



Livro das Fortalezas de Duarte d'Armas, c. 1509.

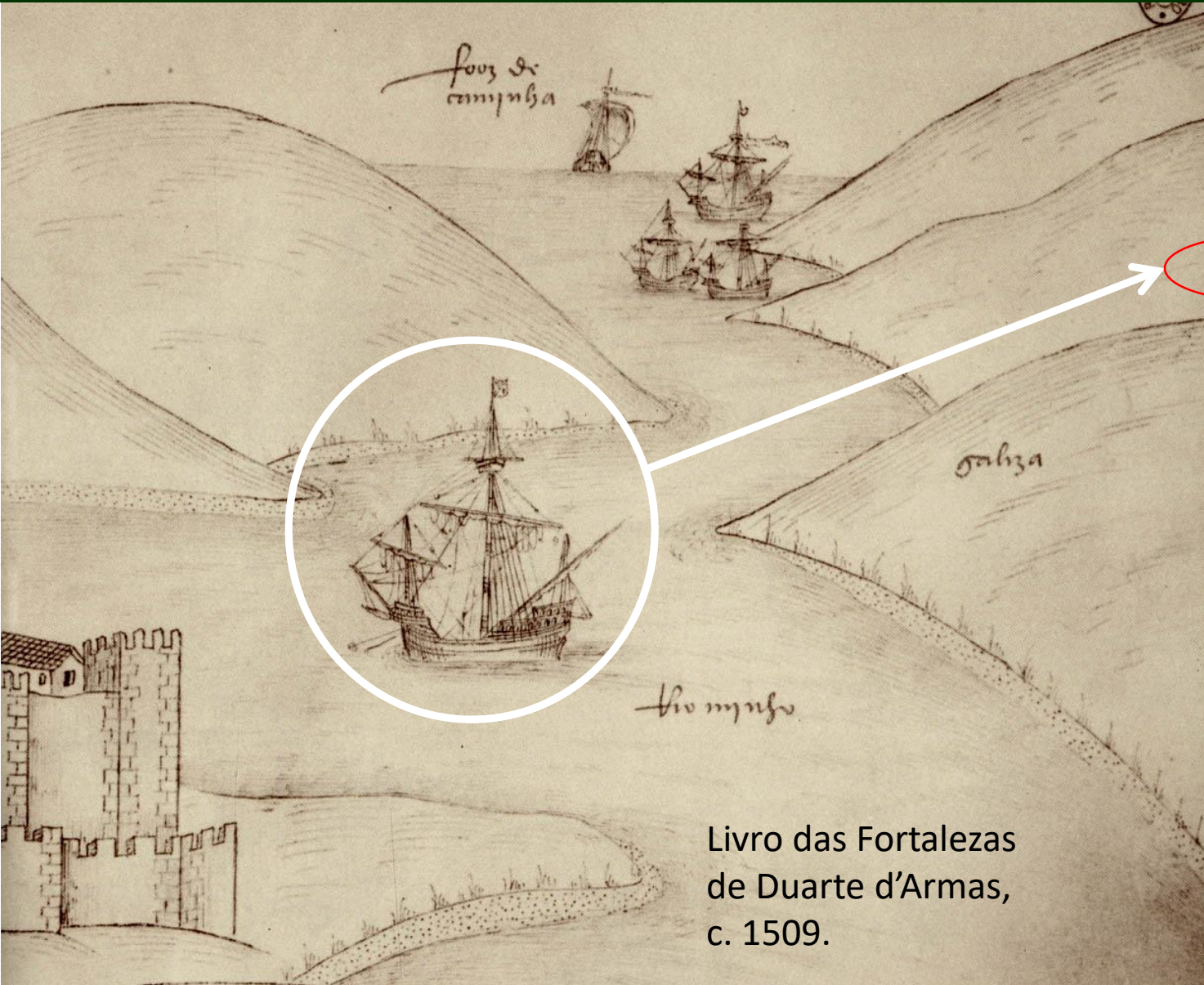


Livro das Fortalezas de Duarte d'Armas, c. 1509.

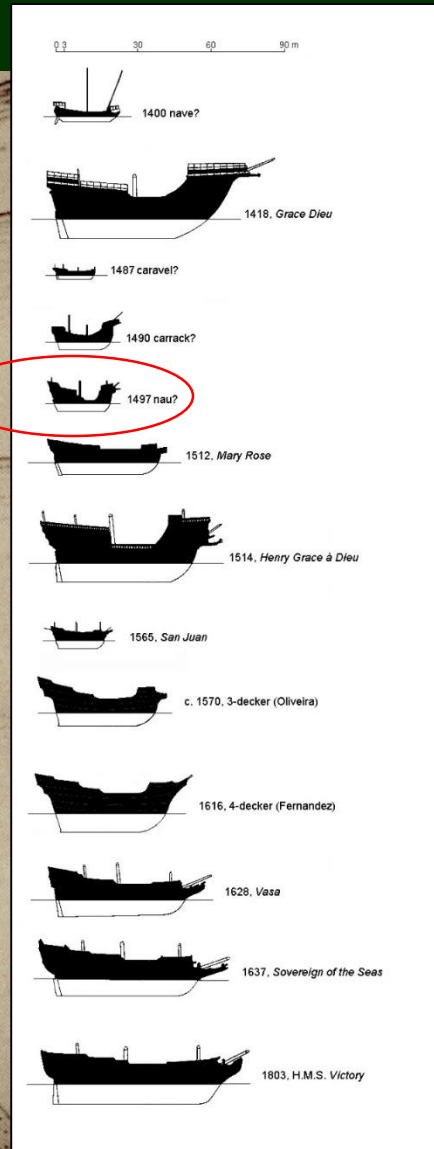


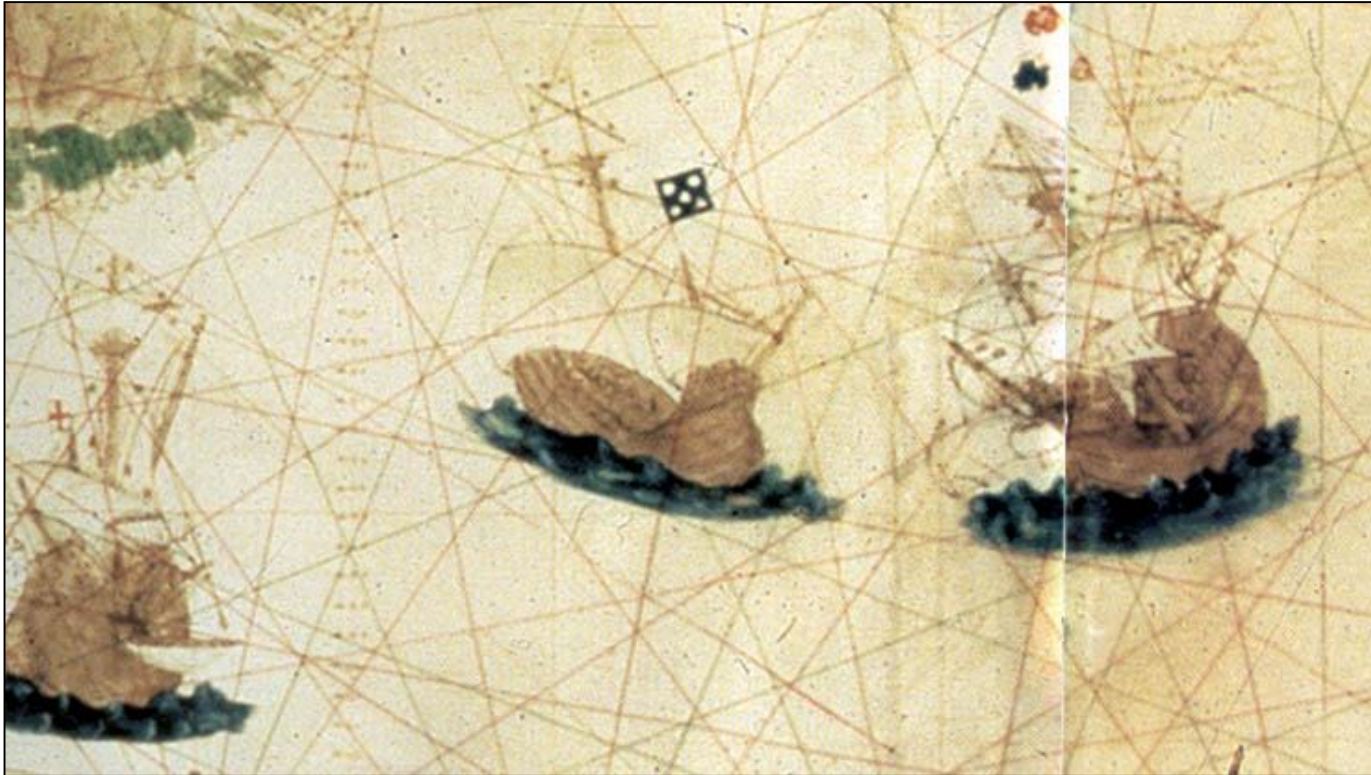
Vila Nova de Cerveira

Shipbuilding in Europe

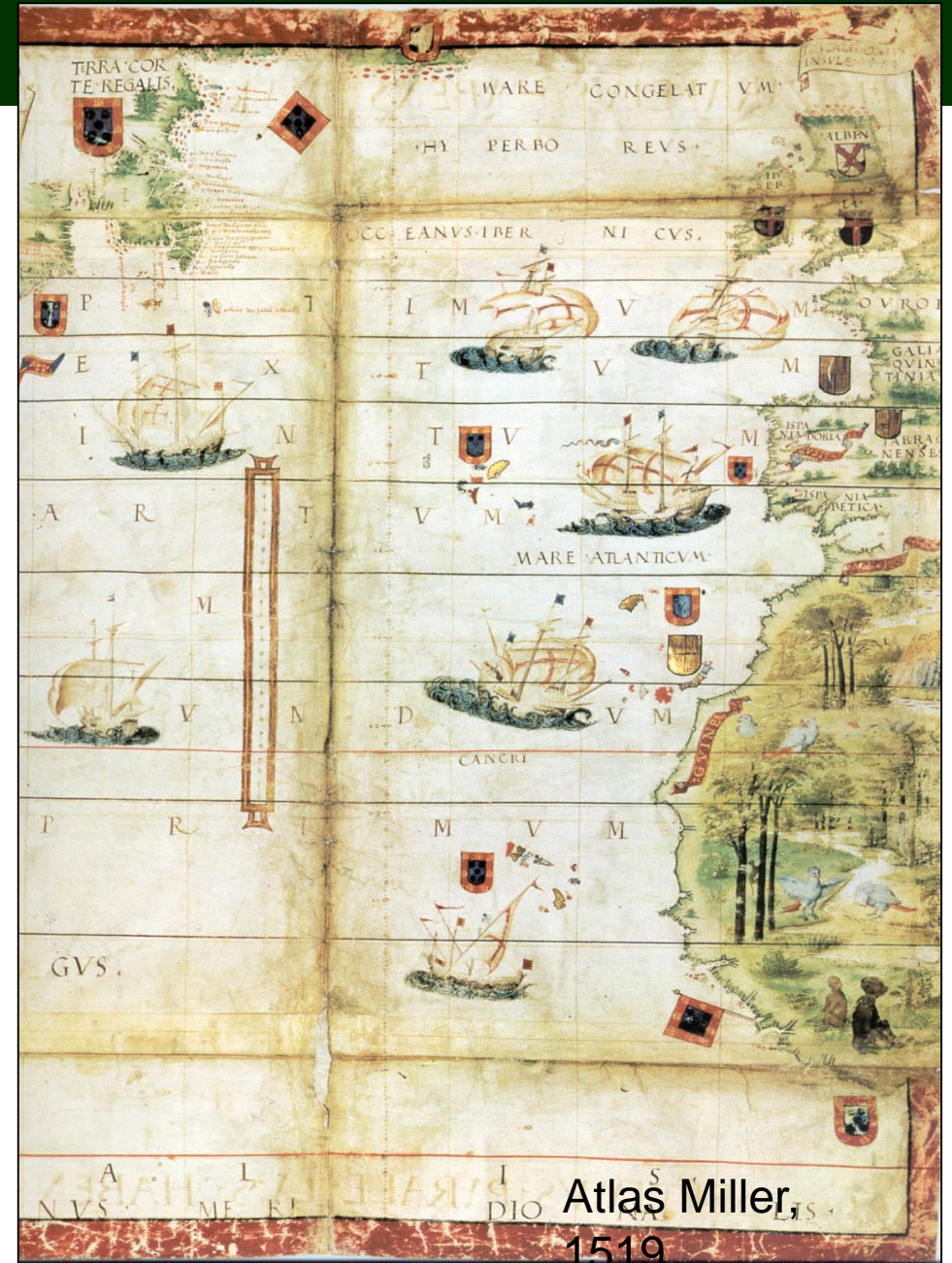


Livro das Fortalezas
 de Duarte d'Armas,
 c. 1509.





Indian Ocean, anonymous and Jorge? Reinell, c. 1510.

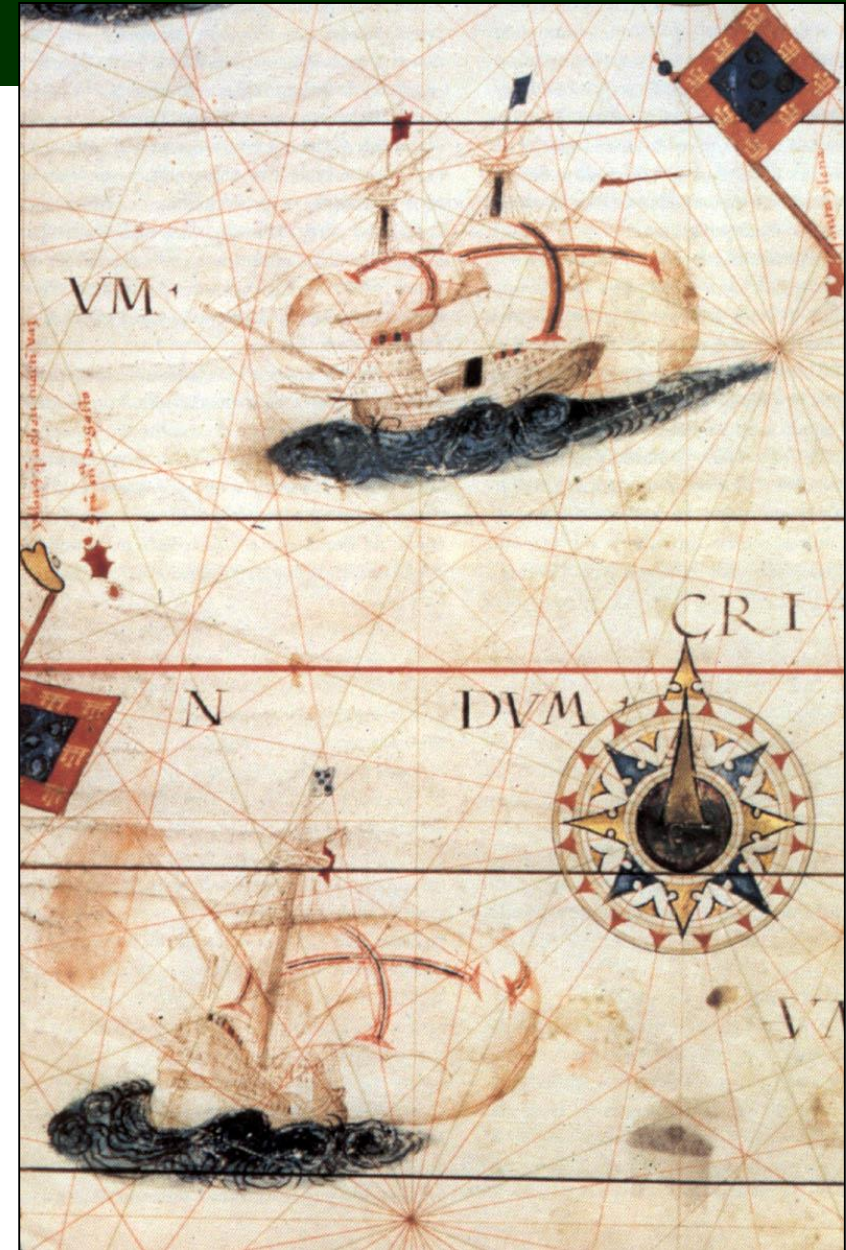


Atlas Miller, 1519.

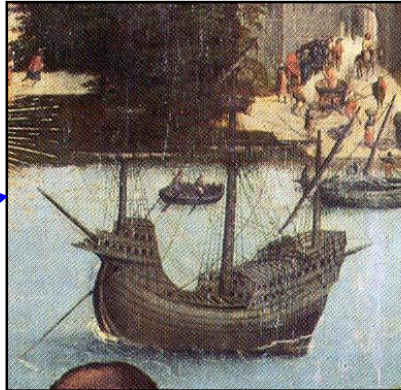
Shipbuilding in Europe



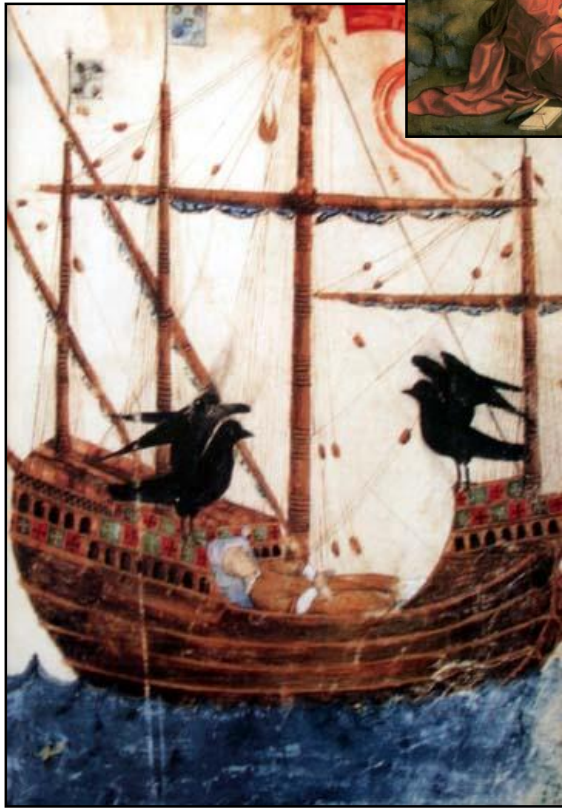
Atlas Miller, 1519.



Shipbuilding in Europe



São João de Patmos, c. 1514.



Livre Carmesin, c. 1502.



Breviário da Condessa de Bertandos, c. 1515-1530.

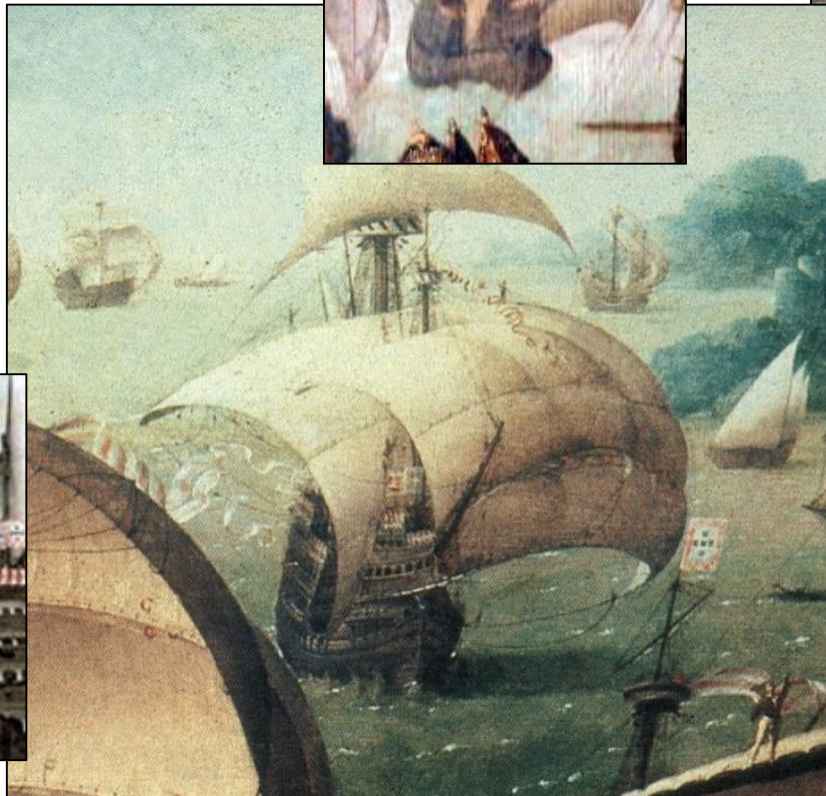
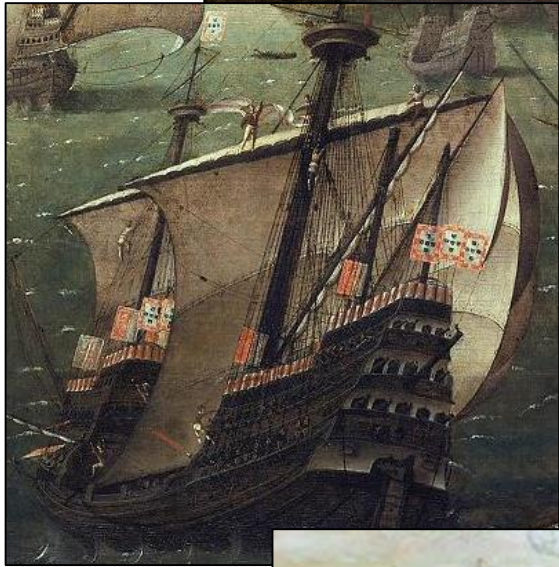


Livro de Horas de D. Manuel, c. 1520.

Shipbuilding in Europe



Carracks on a Rocky Coast.
Att. to Joachim de Patinier, c.
1521-1530.



Retábulo de Sta. Auta, c. 1520.

Shipbuilding in Europe



Regimento do Estrolabio e do Quadrante, 1509.

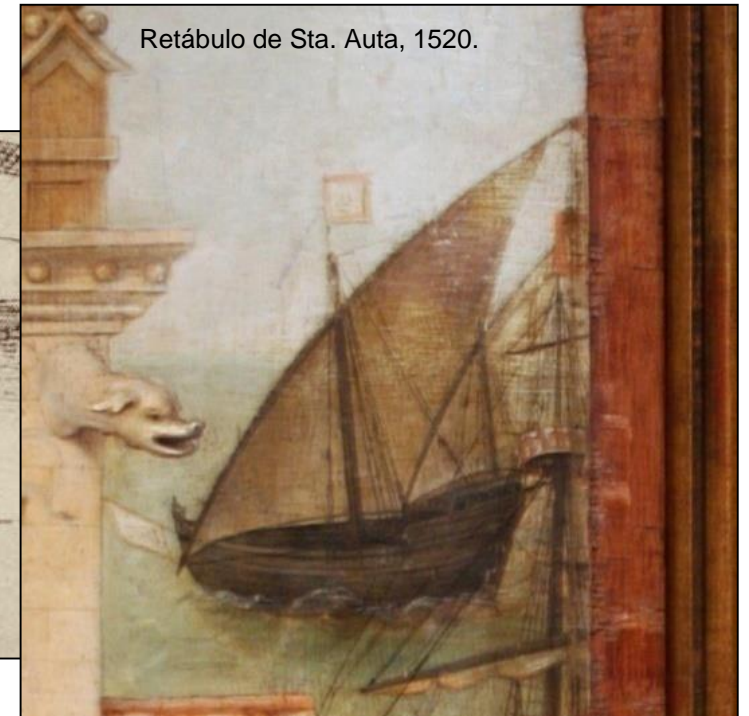


Livro das Fortalezas, D. d'Armas, 1509.

The ships of Columbus and Vasco da Gama were small, sturdy, reliable, and common. Of the kind tested and used by merchants in the northern and southern routes.



Livro das Fortalezas, D. d'Armas, 1509.



Retábulo de Sta. Auta, 1520.

Shipbuilding in Europe

Probably not much different (in appearance) than these replicas.





José Luis Casado Soto found references to 125 caravels in the *Registro General del Sello* in the *Archivo General de Simancas* between 1476 and 1496:

12% of the caravels from the Mediterranean.

45% from Andalucia;

19% from Portugal;

21% from the Cantabric region; and

3% from France, England and the North Sea;

There are no mentions to any possible differences between them.

Were Cantabrian and Andalucian caravels much different from the Portuguese ones?



Santander, 1572 (Braun and Hogenberg)

Foremast is stepped far forward.



Venice, 1572 (Braun and Hogenberg)

Were Cantabrian and Andalucian caravels much different from the Portuguese ones?



Malaga, 1572 (Braun and Hogenberg)

Foremast is stepped far forward AND
rakes characteristically forward.

Caravelas Redondas

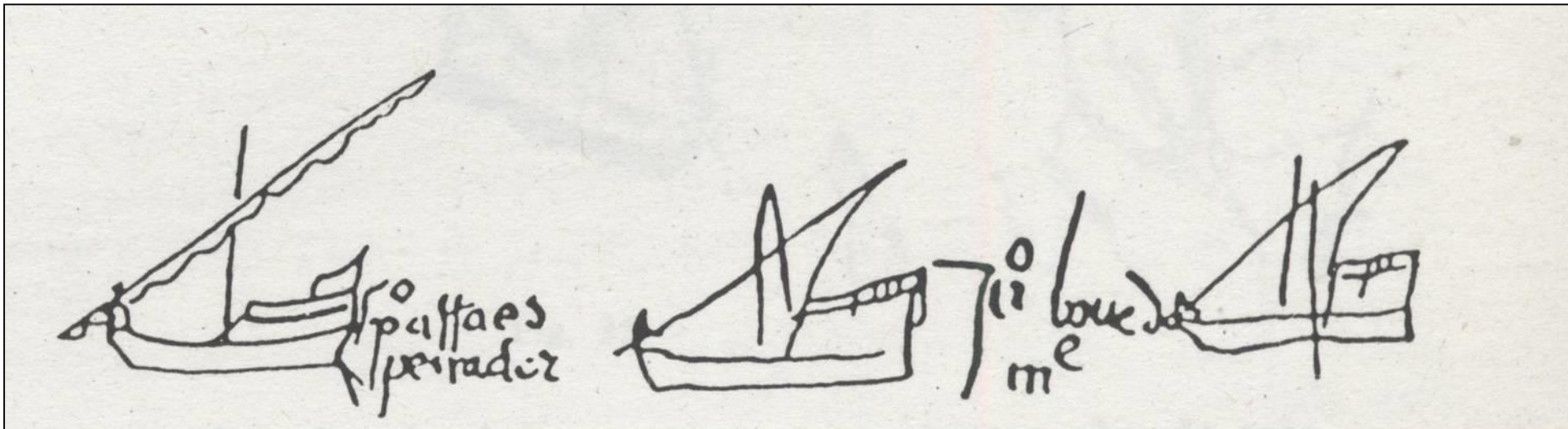
Navarrete calls *caravelas redondas* “*castellanas*”.

Quirino cites him: “caravels were divided into Portuguese and Castilian, the first exclusively lateen-rigged, could sail “*cinco ou seis quartas (55° to 65°)* into the wind, facilitating the Portuguese routs to the African gold mines. Castilian caravels used in their seas with square sails, or better, with a square sail on the foremast.”



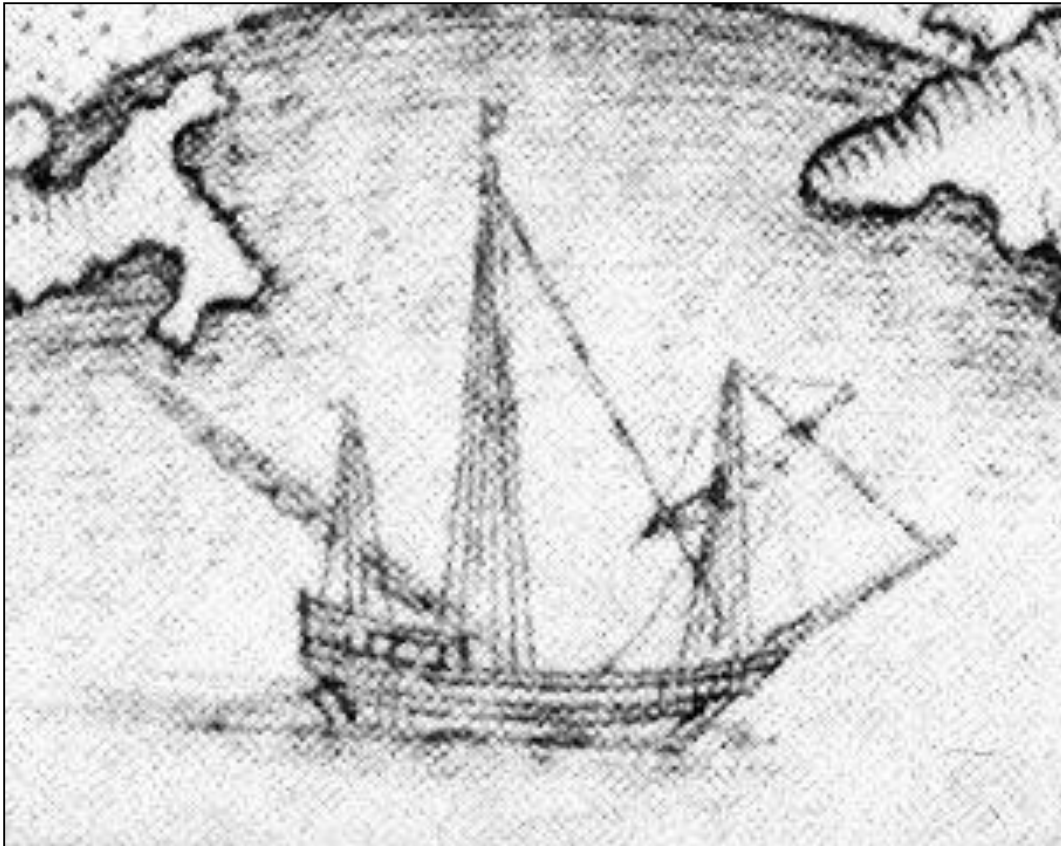
Quirino refers also a 1512 letter from D. Fernando to Pedrarias Davilla, in Panama:
“Yo vos mando que ... se hagan luego tres o cuatro carabelas, al modo de Andalucía, las dos, e las otras dos, pequeñas, latinas, como las de Portugal...”

But small caravels also appear in Spain, in the late 15th century.

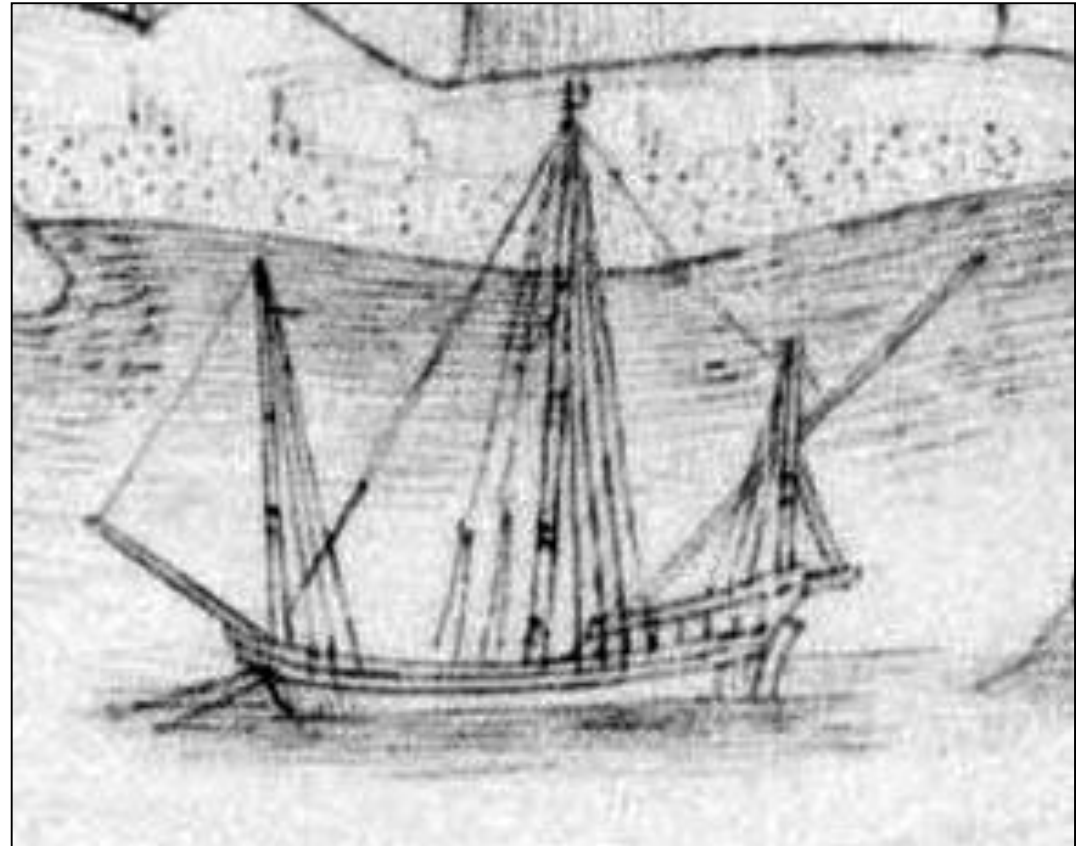


Late 15th century fishermen signatures from Puerto de Sta. Maria, Spain.

And 3-masted *caravelas redondas* appear in Portugal, already in 1509:



Duarte d'Armas, Mértola.



Duarte d'Armas, Valença do Minho.

Were at least some of the Spanish caravels larger?

José Luis Casado Soto mentions a witness account of Columbus' **second** voyage ships.

The witness, Pedro Mártir de Anglería claims that Columbus took 17 vessels: 3 large cargo ships with tops, 12 caravels, and 2 large caravels, ***with masts large enough to support tops.***

Nothing is said about their rigging.



Naos y carabelas de la carta de Juan de la Cosa.

Was their rigging always different from that of the Portuguese caravels? Two documents dated to 1498 (before Columbus' 3rd voyage) contain the inventories of the rigging of two caravels:

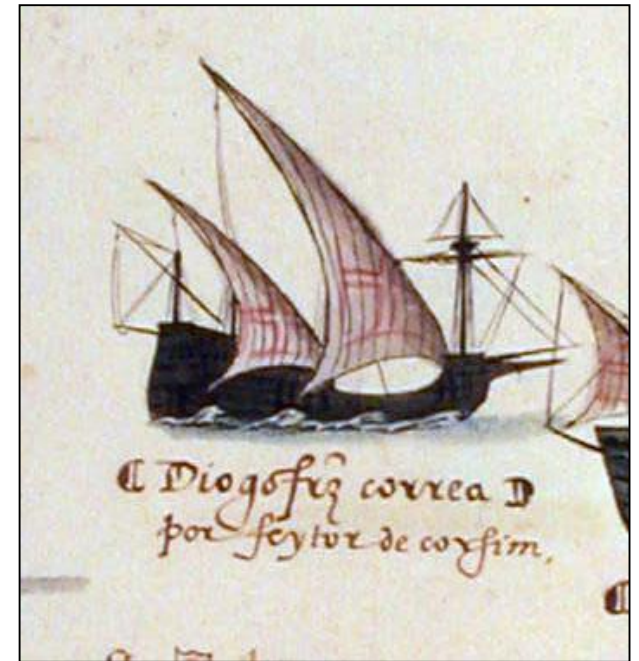
- a) *Santa Clara*, or *Niña* (60 toneles – probably not the *Niña* of the first voyage), and
- b) *Santa Cruz*, or *India*, built in Hispaniola during the second voyage with the remains of the ships lost in a hurricane.



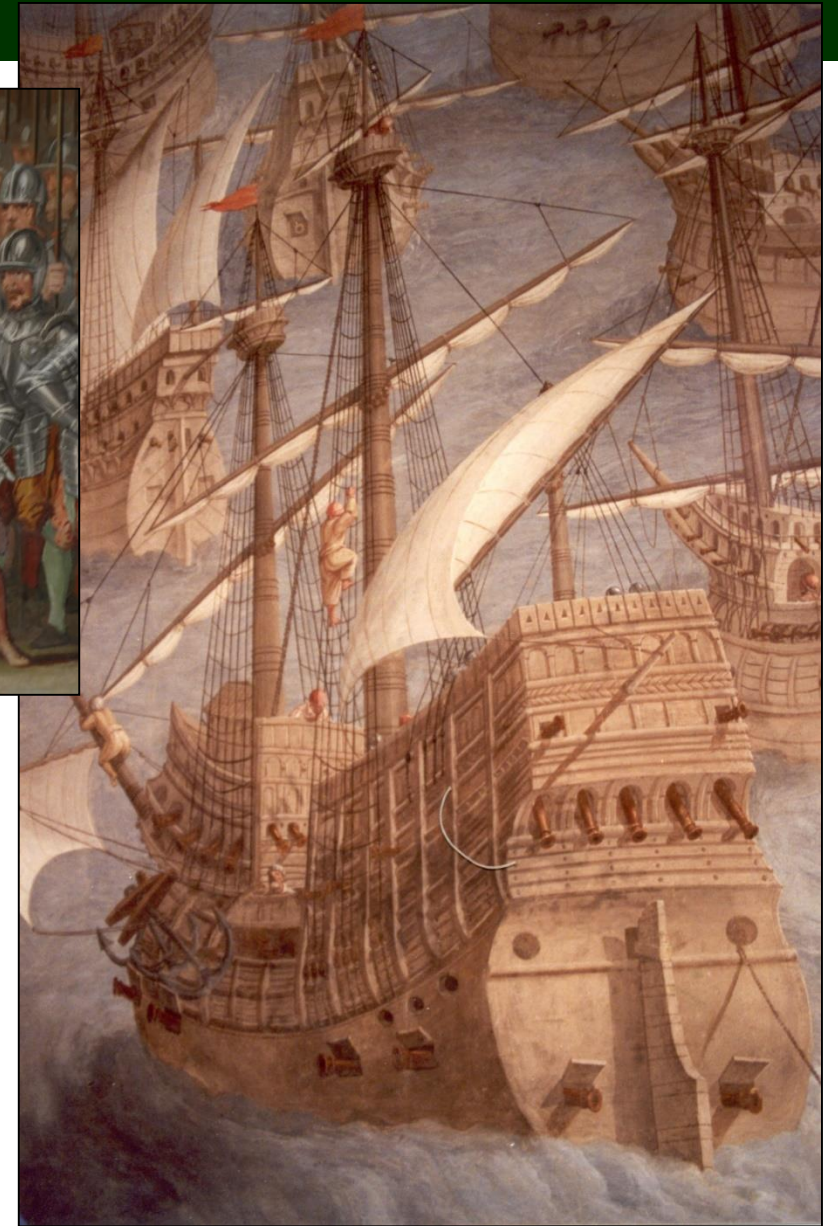
Both these caravels had four masts, and both had square sails on the fore and main masts, and lateen sails on the mizzen and bonaventure.

a) *Santa Cruz* has a bowsprit and a spritsail; and

b) *Santa Clara* has “*dos botalos vno del trinquete y otro de la cont[ra]*”.



Iconography can tell us a lot about the ships, but also the people that inhabited them.



Questions?