

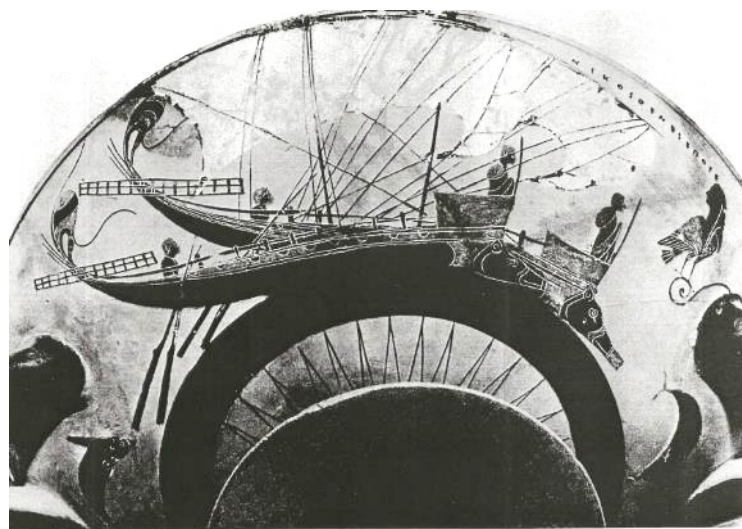
London, BM – Warship and merchantman (Boardman, B 436)



London, BM – Odysseus and the Sirens, Attic red-figure stamnos from Vulci, c. 450 BC n.b. -- painted eye



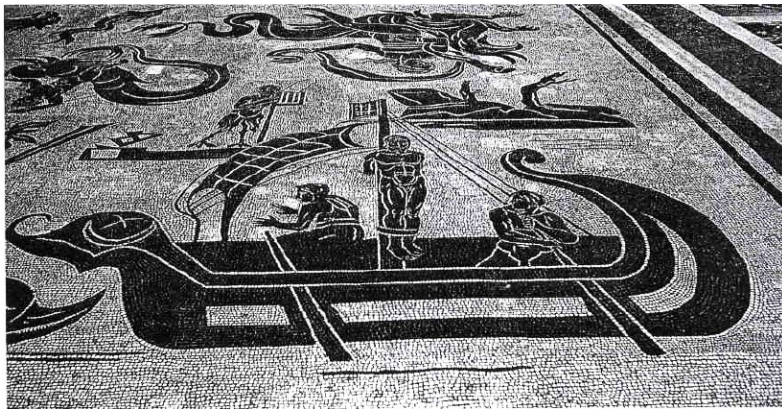
Munich, Antikensammlungen – Dionysus sailing, kylix by Exekias



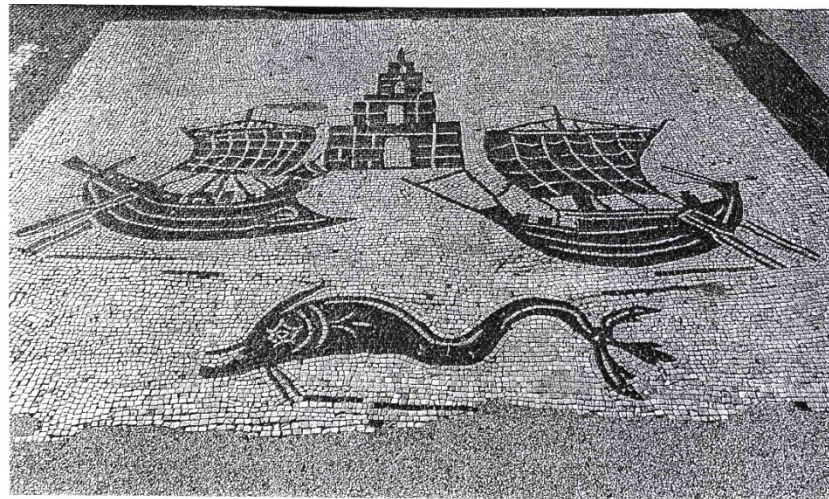
Paris, Louvre – Aphract warship, 2<sup>nd</sup> half 6<sup>th</sup> C BC n.b. --'pig' heads at bow



Aureus - so-called 'legionary issue' under Marc Antony (31-32 BC)



Vatican, floor mosaic from Tor Marancio in Rome, after 123 AD (Ling, pp. 45-7).



Ostia Antica, floor mosaic with insignia of a company of merchantmen (with dolphin and pharos), 2-3<sup>rd</sup> C AD (Ling pp. 44-45)





Venice, Mus Archeologico – detail from a battle sarcophagus, 3<sup>rd</sup> C AD  
**n.b. – figures on prows**



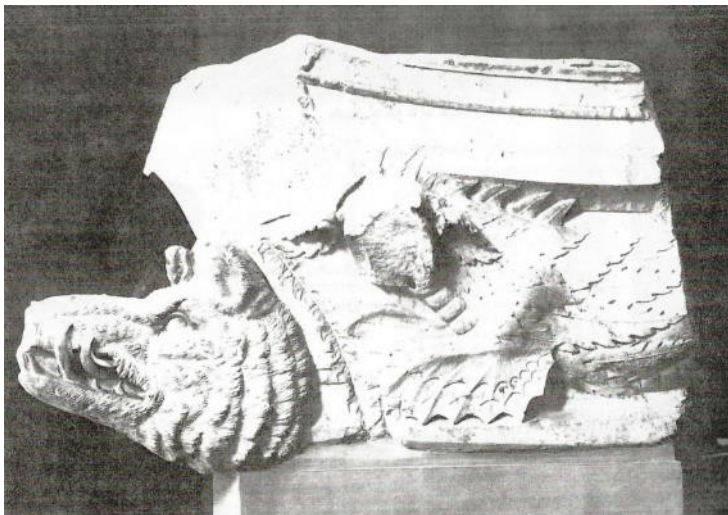
Rome. Navicella Fountain, Sta Maria in Domnica



[http- //jeannetift.photoshelter.com](http://jeannetift.photoshelter.com)



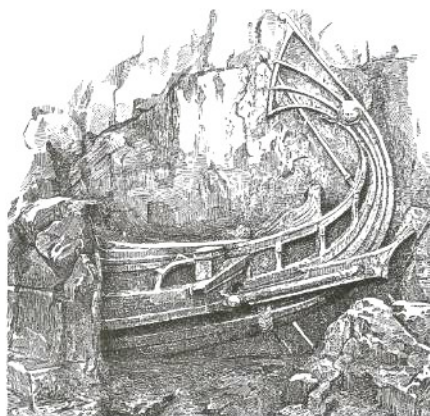
Rome. Navicella Fountain, Sta Maria in Domnica  
Drwg by Joh Wiedewelt, Stuttgart, Staatsgalerie, 1756  
(from [http- //www.centerforbritishart.org/wilson-in-italy/76](http://www.centerforbritishart.org/wilson-in-italy/76))



**Boar's head** decoration on the prow with sea-monster heads on the sides - from a ship, fountain found on the Caelian Hill, Rome (fr. Lehmann, *Samothracian Reflections*, 1973)



Hellenistic galley, 3<sup>rd</sup> C BC -- **n.b. eye**



Relief with the stern of a Rhodian galley, c. 200 BC



Relief with Roman Trireme, 2<sup>nd</sup> half 1<sup>st</sup> C BC

For more images and descriptions, see L. Casson, *Ships and Seamanship in the Ancient World*, Princeton 1971





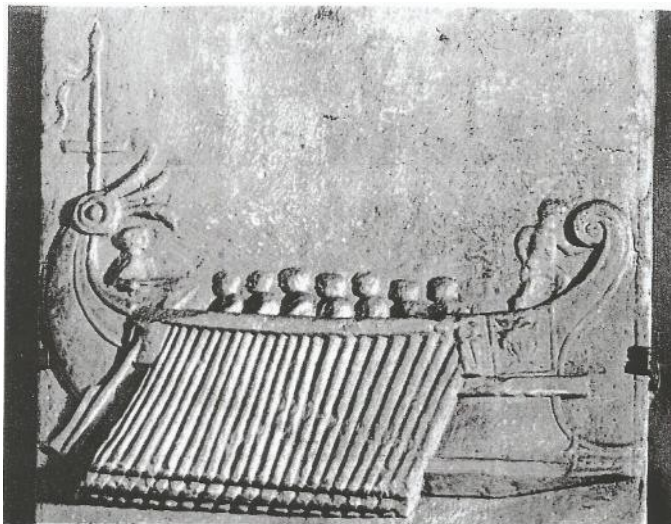
Trajan's trireme with Trajan at the helm ( at left) and the prow with a raised artemon (at the right)



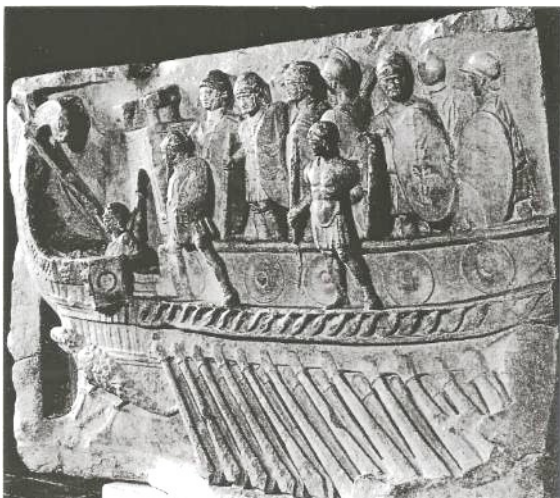


Rome, Torlonia Museum – relief of a *navis* vessel entering harbour originally from *Portus*; c. 200 AD -- female figure with lighthouse on her head (upper right); relief of *tutela* on prow and stern; figures on sail



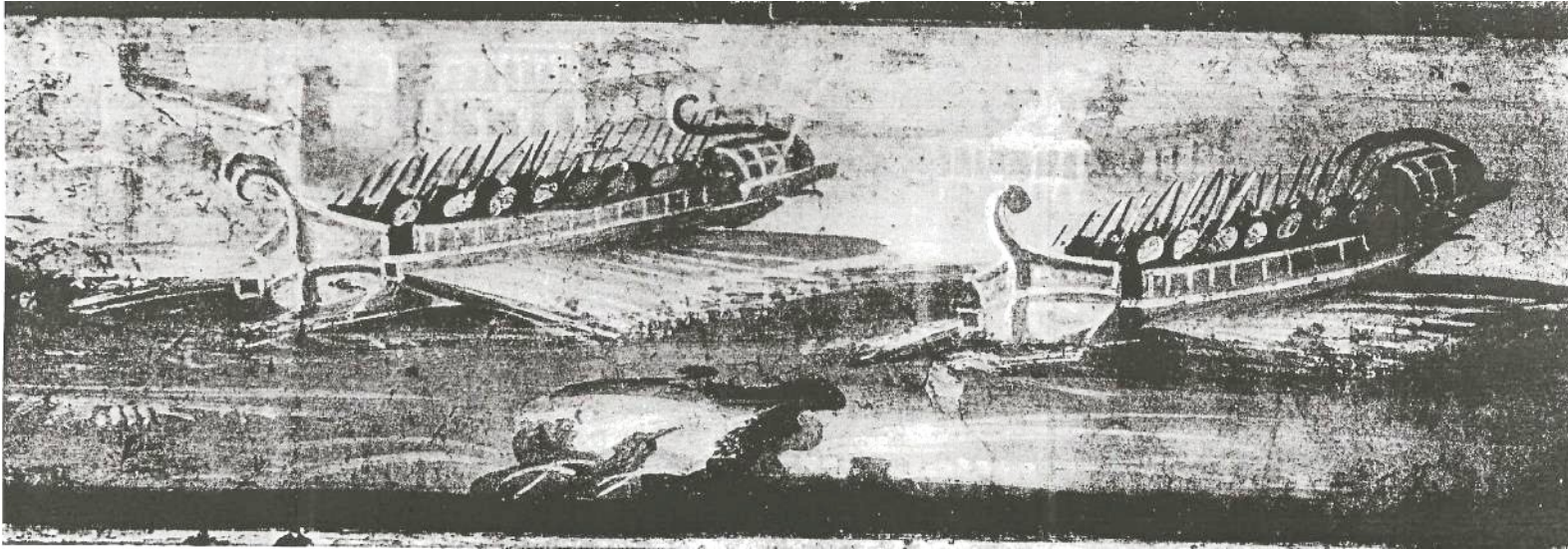


Naples, Mus Arch – Pair of reliefs with Roman triremes, 1<sup>st</sup> C BC to AD **n.b. – stylised oars as ‘stripes’**



Vatican – two views of a relief of a Roman two banked galley (probl quadrireme or larger) second half 1<sup>st</sup> C BC -- **n.b.– crocodile at stern and tutela**

For more images and descriptions, see L. Casson, *Ships and Seamanship in the Ancient World*, Princeton 1971 7



Pompei, Temple of Isis - Roman galleys, 1st c AD  
n.b. -- basket-like crosshatching to depict cabin



Rome, Torlonia Mus - relief of Roman merchant galley originally from Arezzano -

n.b. -- goose head and insignia poles

For more images and descriptions, see  
L. Casson, *Ships and Seamanship in  
the Ancient World*, Princeton 1971



For more images and descriptions, see L. Casson, *Ships and Seamanship in the Ancient World*, Princeton 1971



Copenhagen, NyCarlsberg Glyptothek – vessels to either side with standard rigging and one in middle with a sprit rig, 3<sup>rd</sup> C AD



Copenhagen – Sprit-rigged vessel, (detail of above)

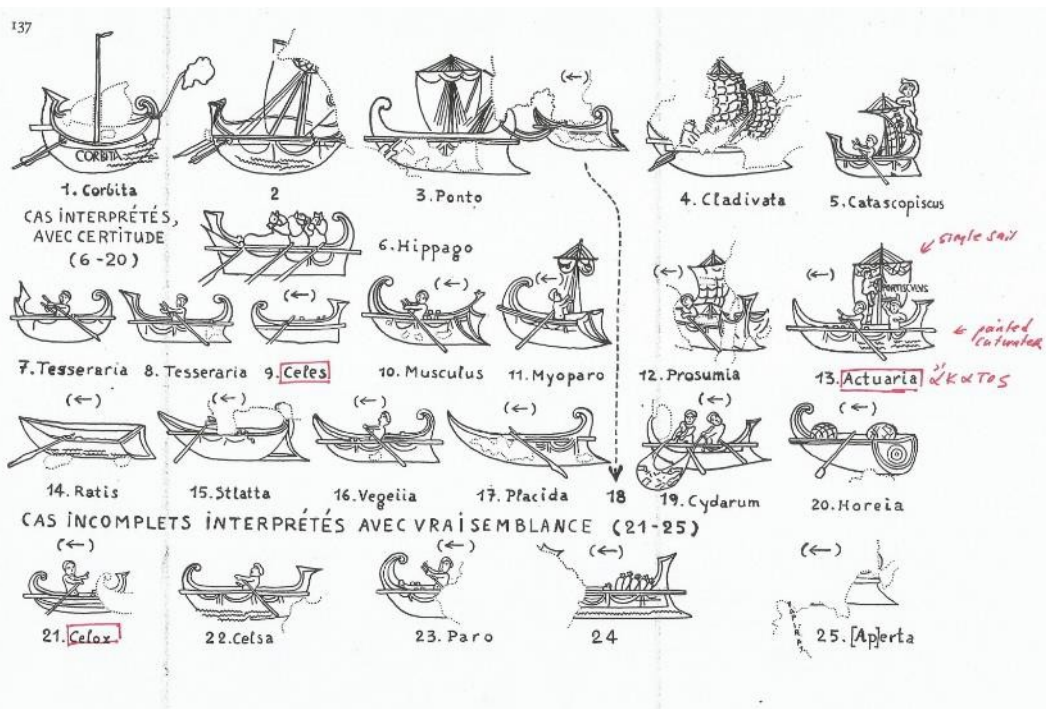


Istanbul, Arch Mus - Gravestone of Demetrius of Lampsacas, 2<sup>nd</sup> or 3<sup>rd</sup> C AD (with sprit-rigging)



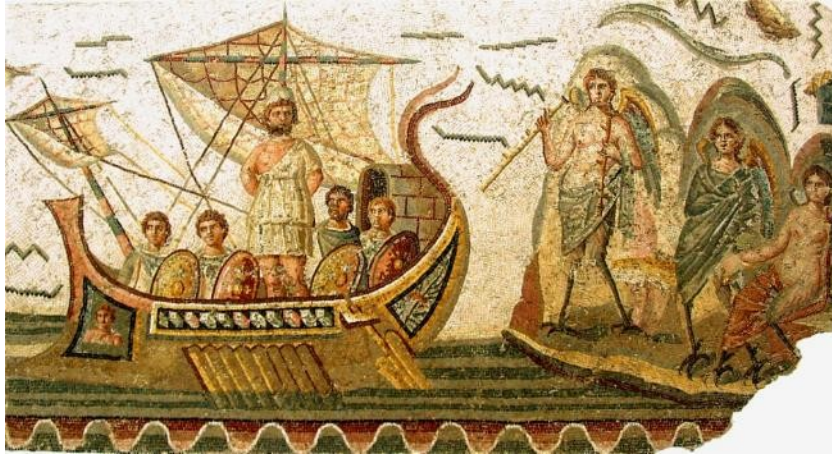


Tunis, Bardo Museum -- catalogue of ships from mosaic from Athiburus (Getty images)



From L. Casson, *Ships and Seamanship in the Ancient World*, Princeton 1971





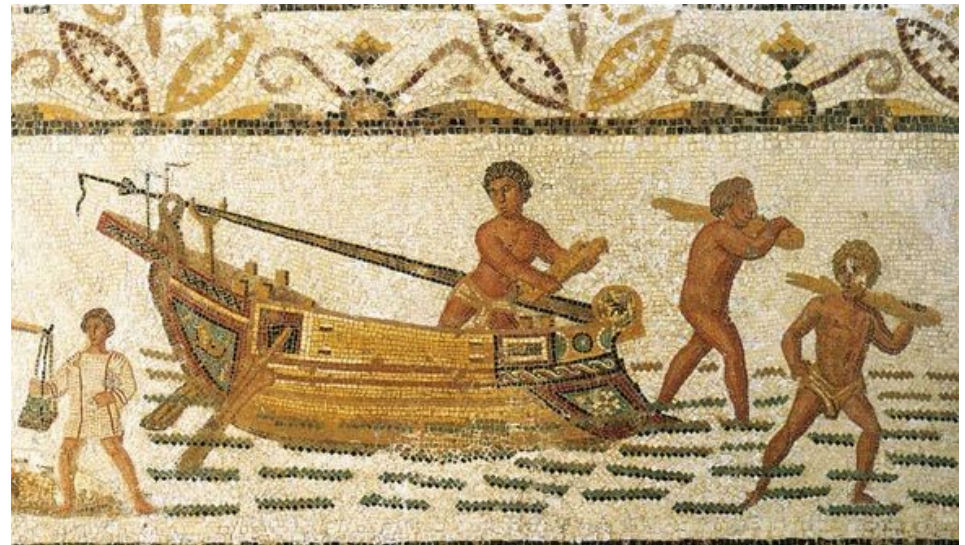
Dougga, House of Dionysos and Ulysses -- Ulysses and the Sirens (fr. Dunbabin, *Mosaics of N Africa*) n.b. – tutela panel



Dougga, House of Dionysos and Ulysses -- Dionysus and the Tyrrhenian Princes (fr. Dunbabin, *Mosaics of N Africa*)



Paris, Louvre -- Triumph of Neptune and Amphitrite, fr Constantine, ea 4<sup>th</sup> C AD



Tunis, Mus de Bardo -- Unloading a ship, from Sousse, ea 3<sup>rd</sup> C (fr. *Age of Spirituality*,)





Tripoli Museum, mosaic from Sebratha



Tunis, Bardo Museum – Etruscan Trireme





3- pronged prow  
Cyrene (Libya) figure of Nike / Victory on prow of ship (only prow remains in situ)



dolphins



figures = winds and water?



Rome, Capitoline Mus



Rome, Mus del Terme – Ulysses and Sires (n.b. feathers and feet)

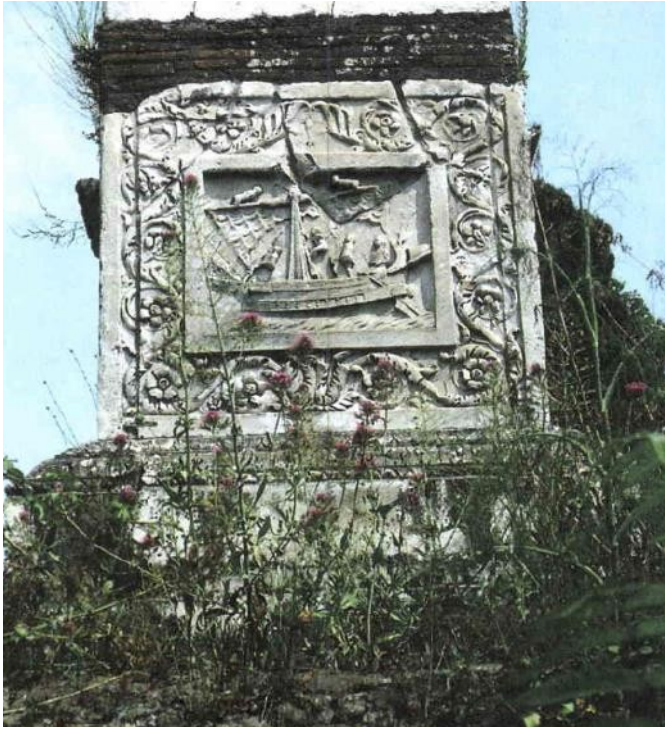


Rome, Sta Maria in Trastevere, Narthex graffiti



## Classical images - Roman

Navis

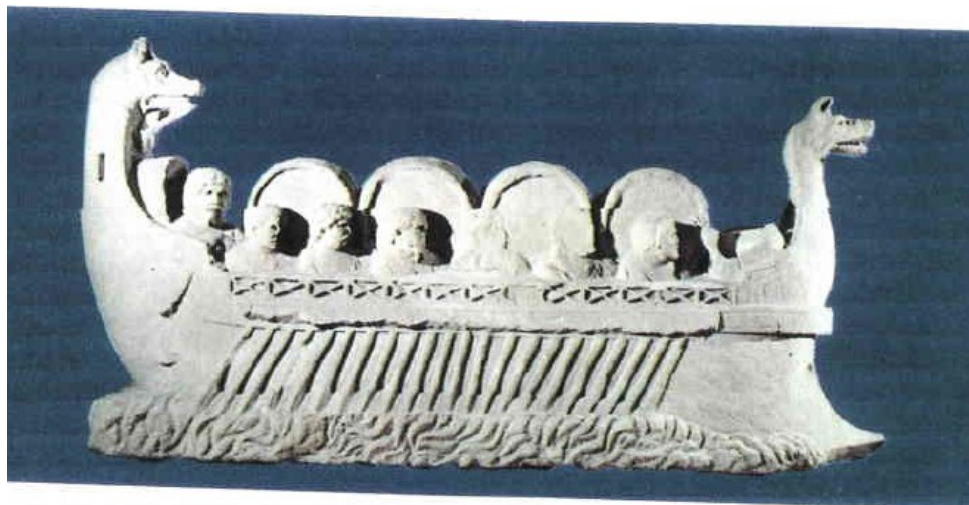


Naevoleia Tyche of Pompeii (tomb of a deceased freedwoman), Ship with furled sails entering harbour (from Lyttleton and Forman, *The Romans and their Beliefs*, London 1984).



Leptis Magna, Libya, Old Market -- (top) warship, (bottom) merchant ship





Trier, Rheinisches Landesmuseum, a Moselle River wine barge, first quarter 3<sup>rd</sup> C

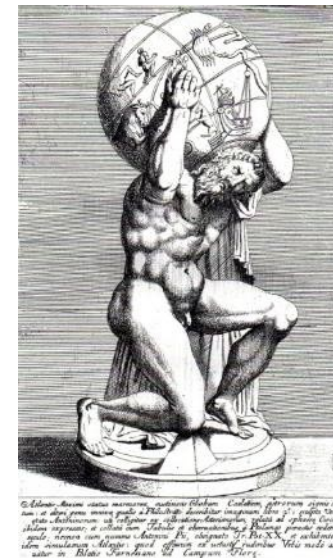


Rome – Sta Maria in Trastevere, mosaic fragment near the Sacristy

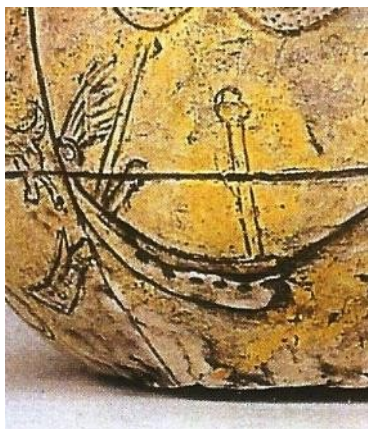


Dijon, Mus Arch, The Goddess Sequana, 2<sup>nd</sup> C AD (with duck's head bow) found in the Roman-Gaul sanctuary at the mouth of the Seine





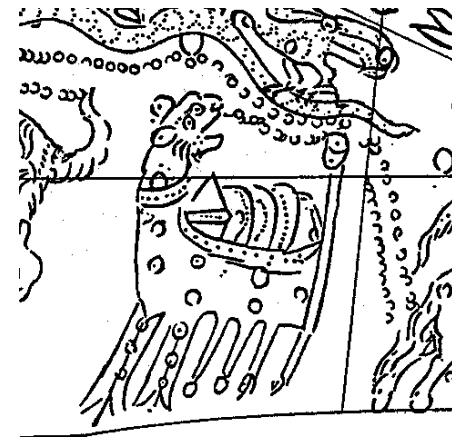
Naples, Farnese Atlas - back half of a Roman ship  
 n.b.- aphlaston, 2 steering oars, Nike tutela and sea monster on hull



Paris, Kugel Globe  
 n.b.- aphlaston, insignia standard, steering oar

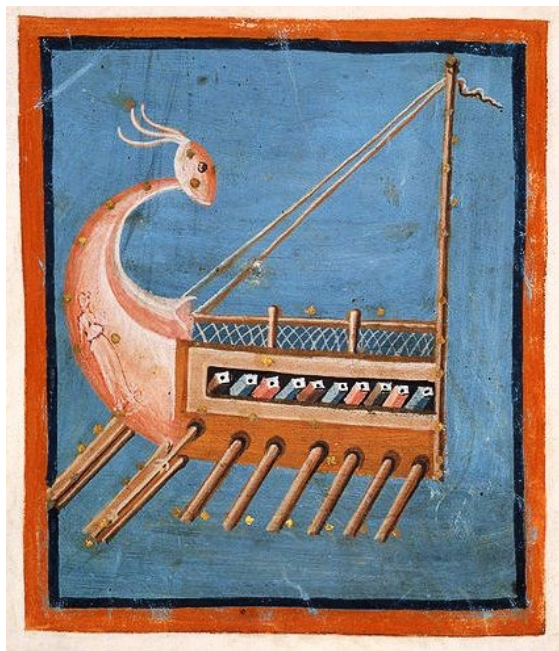


Mainz globe - animal head, steering oars, shields (drawing by E Kunzl)



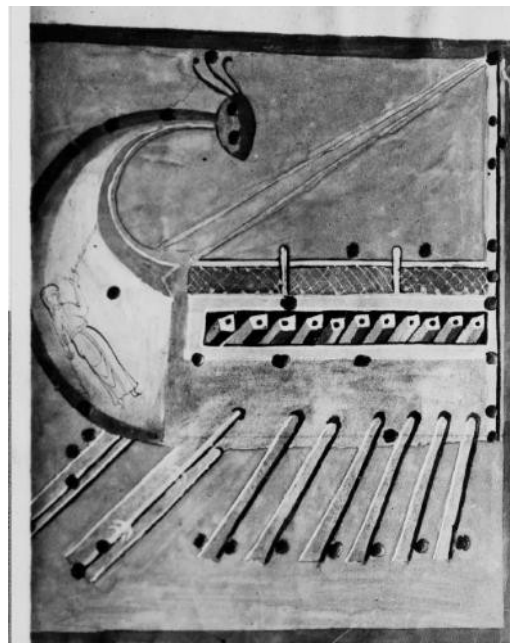


l. = z stemma



Leiden, Univbibl  
Voss lat 4° 79

n.b.— ahlaston, female tutela  
on stern, 2 steering oars



Boulogne-sur-Mer, Bibl. Mun.  
Ms 188

n.b.— same



Bern, Burgerbibl,  
Ms 88

n.b.— same, with addition of cabin



vs. planisphere



vs. planisphere



# Germanicus mss

II and III. = O stemma (O<sup>1</sup> or v)

II.



Basle, OBU  
Ms AN.IV . 18

n.b. – aphlaston/eye, steering oars, serpent flag



vs. planisphere

III.



Aberystwyth, NLW  
Ms 735 C



vs. planisphere



vs. hemisphere



vs. schema



# Germanicus mss

# Navis

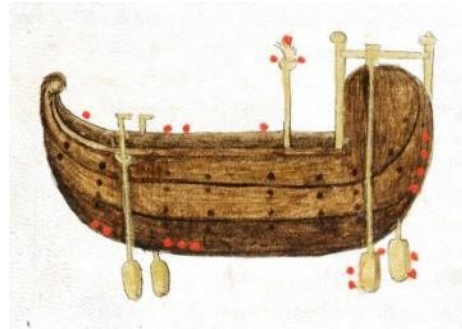
IV. = O stemma (O<sup>2</sup> or μ)



Madrid, Bib nac  
Ms 19 (16)

n.b. – aphiaston, cut-off; mast with rope, 2 steering and 3 rowing oars, no shields

Va. (= Sicliensis )



Cologne, Bib Bodmer  
Cod lat 7



NY, Pierpont Morgan Libr  
Ms M 389

Vb. (= Sicliensis )



Vatican, BAV  
Barb lat 76

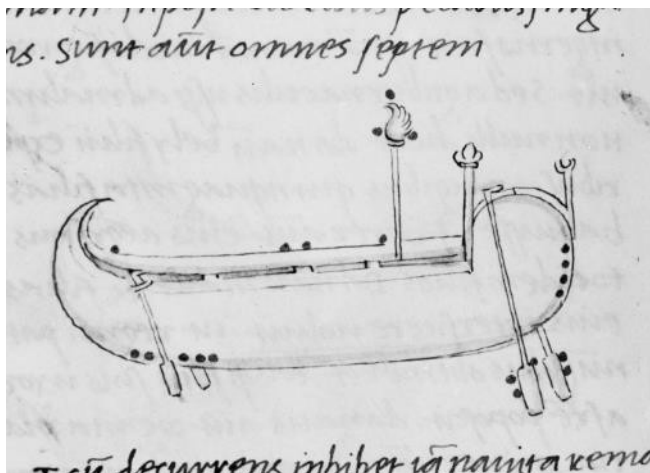


VI.



London BL  
Egerton 1050

VII.



London, BL,  
Add Ms 15819



Naples, Bib naz  
XIV D 37

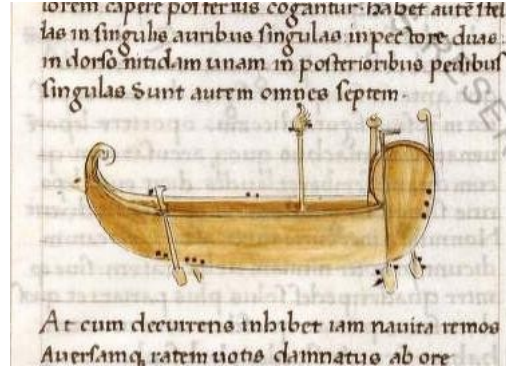
= fragmentum ...  
reperum in  
Sicilia



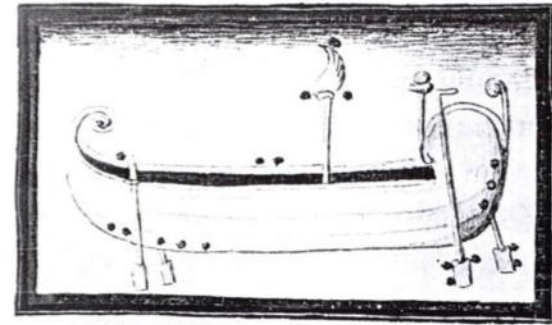
VIIIa.



Madrid Bib Nac  
Ms 8282



Vatican, BAV  
Barb lat 77



At cum decurrens inibet iam nauita remos

Vienna, Schottenstift  
Ms 51

VIIIb.



Vatican, BAV  
Urb lat 1358

n.b. – crow's nest and poop deck

VIIIc.



Florence, Bibl Laurenziana  
Plut 89 sup 43

n.b. – galleys fore and aft; rudder at stern

IX.



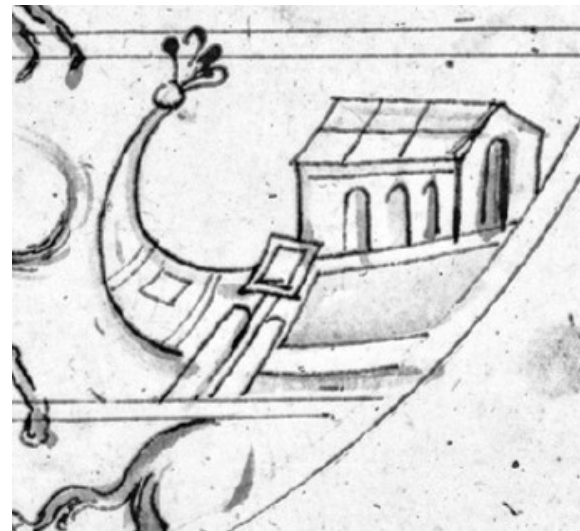
Montpellier  
Ms H 452

n.b. – no masts; gangplank





planisphere

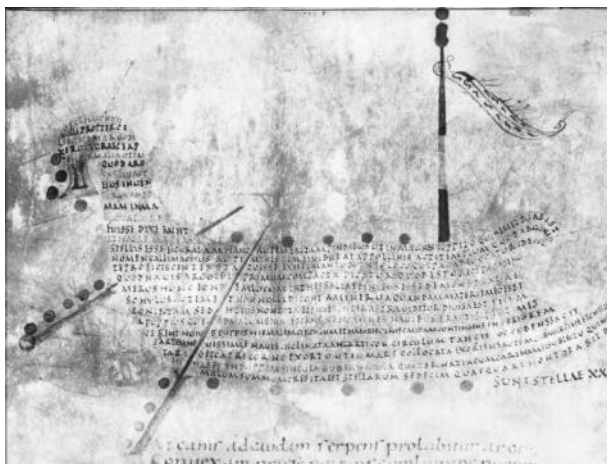


hemisphere

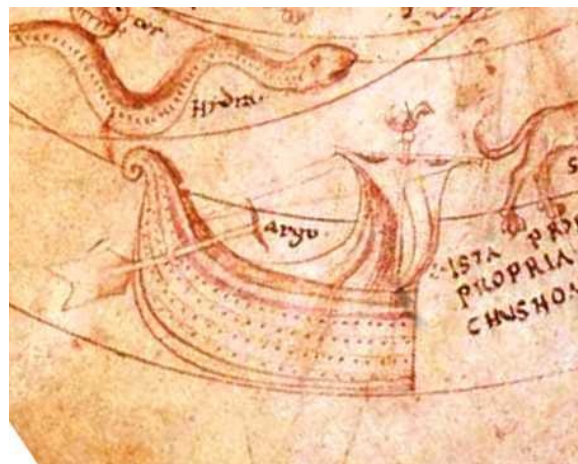
Vatican BAV,  
Vat grec 1087

n.b. – with aphlaston, steering oars, hut, shield and pennant (?) from  
mast, rowing oars transformed into waves





London, BL  
Harley 647  
n.b. - pennant



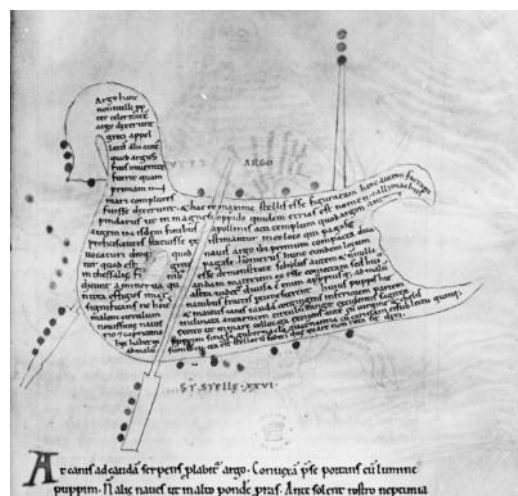
London, BL  
Harley 647 – planisphere  
n.b. - sail



London, BL  
Harley 2506  
n.b. - sail



London, BL  
Cotton ms B.V., pars 1 – animal head, hut, sail



London, BL  
Cotton Ms C. 1



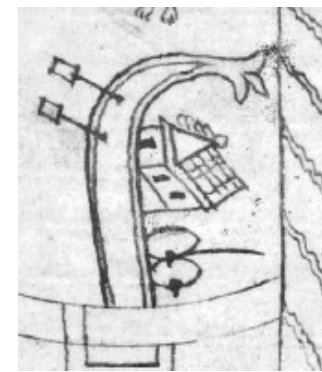
Gottweig,  
Stiftsbibl Ms 7 n.b. - hut, sail



Dresden, Landesbibl.  
Ms D C 183  
shields



Dresden hemisphere  
n.b. – hut, shields



Dresden globe  
n.b. – hut, pennant ,



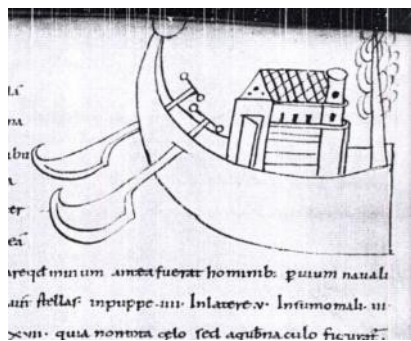
Paris BN  
Lat 12957 n.b. – hut, pennant



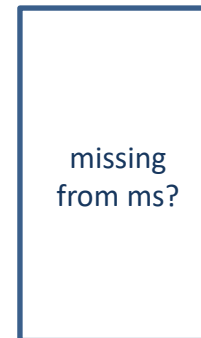
Paris hemisphere  
n.b. – hut, pennant , shields



Paris globe  
n.b. – hut, pennant , shields



Prague, Univbibl  
Ms 1717 n.b. – hut, pennant





1a.



St Gallen, Stiftsbibl  
Ms 902 – n.b. fish, curved 'mast'



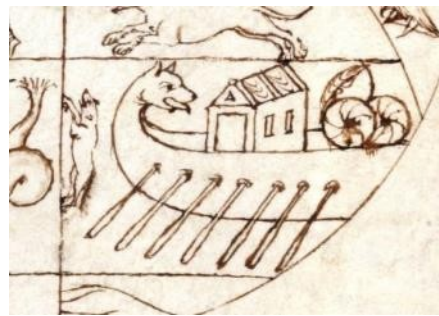
hemisphere – n.b. head, cabin, shields, oar openings, veil on mast



on globe



St Gallen, Stiftsbibl  
Ms 250 – n.b. fish, curved 'mast'



hemisphere – n.b. head, cabin, shields, oar openings, no mast



on globe

Ib.



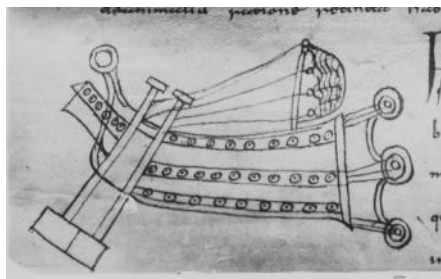
Gottweig, Stiftsbibl.  
Ms 7 (146)



Siena, Bib com  
Ms L. IV. 25



I. (distant relative)



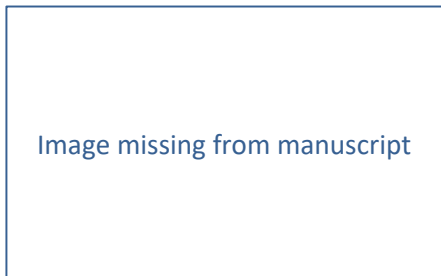
Paris BN  
n.a. 1614 – triple ram, parachute sail, steering oars



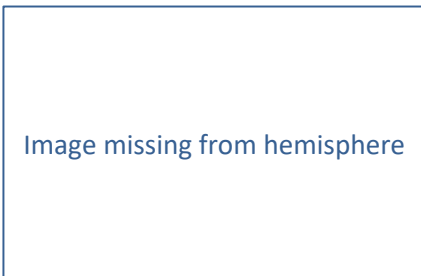
hemisphere – animal head, building, shields, oars



globe



Munich, Staatsbibl.  
Clm 560



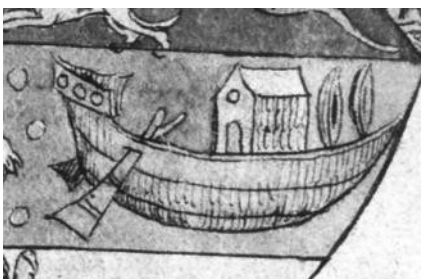
hemisphere



globe



Vatican, BAV  
Reg lat 1324 -- church, twisted sail, steering oars

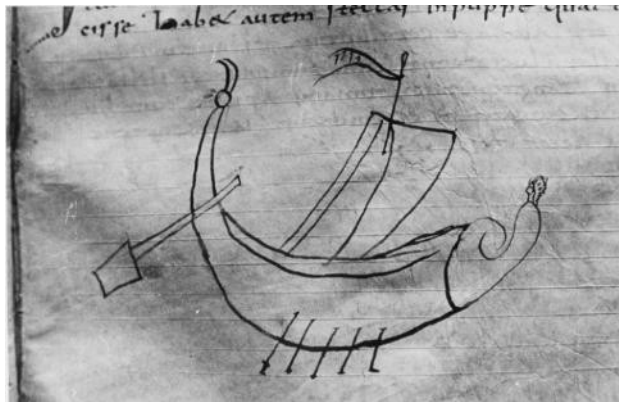


hemisphere – building, shields, steering oars



globe – building, shields, steering oars

II.



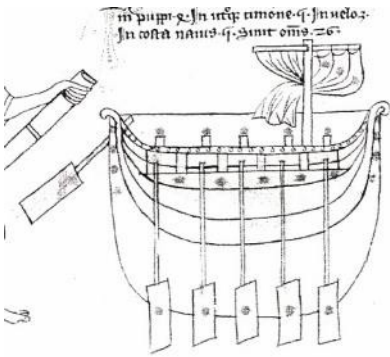
Cologne, Dombibliothek

Ms 83.11

n.b. – sail folded over mast

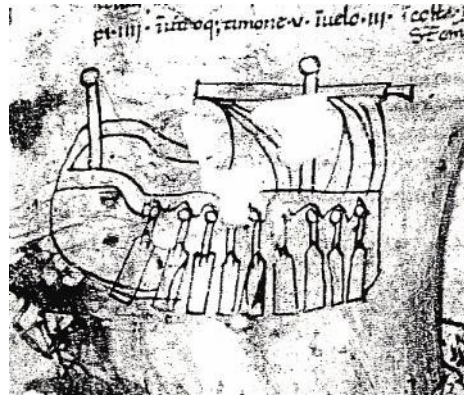


I.



Oxford, Bodleian  
Laud misc 644

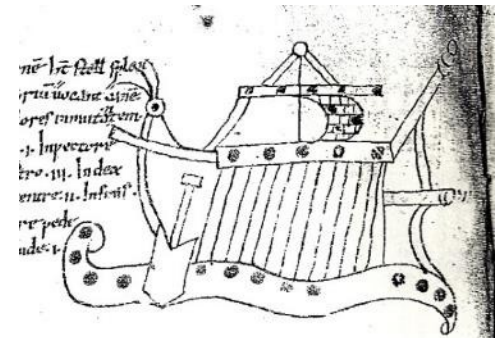
n.b. – single rudder, oars, twisted sail



Padua, Bibl Antoniana  
Ms Anton 27

n.b. – curved stern with pole, oars

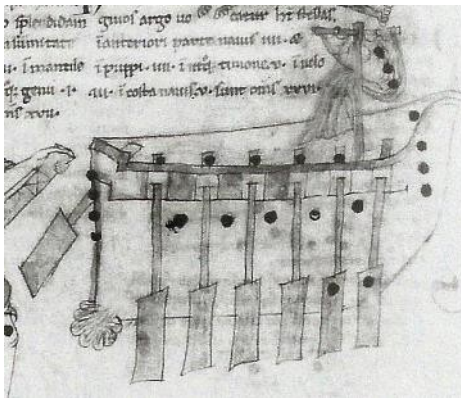
Ia.



Cycas sub. n. v. c. r. p. s. e. b. g. r. a. d. u. n. t.  
L. r. a. l. l. a. t. m. e. a. n. d. a. n. o. b. s. e. r. v. a. t. d. e. m.

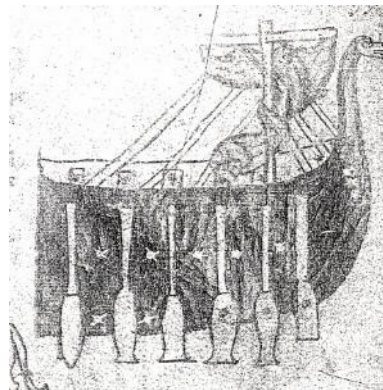
Dijon  
Bib mun, Ms 488

n.b. – water, aplanstion, billowing sail;  
steering oar, triple ram (?), water



Paris, BN  
Lat 14754

n.b. – twisted sail, oars,  
'flower' at cut-off



Venice, Bib Marciana  
Ms VIII, 22

n.b. – goose head; twisted  
sail with ropes, oars

Ila.



Paris, BN  
Lat 5543

n.b. – aphlaston; head behind rudder, nail marks on hull, pole with pennant; two shields, stylized water

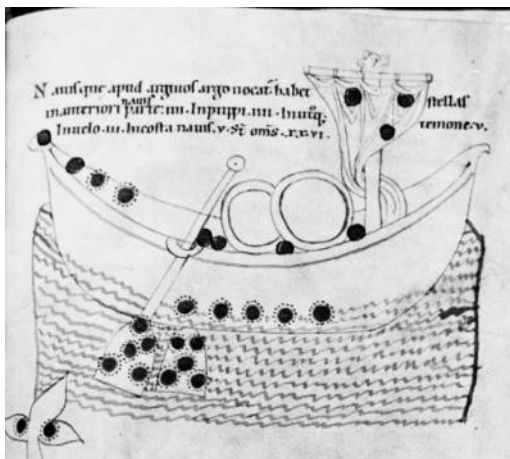


Paris, BN  
Lat 5239

n.b. –aphlaston; head behind rudder, pole with pennant; pole with pennant; two shields, water misunderstood



IIb.



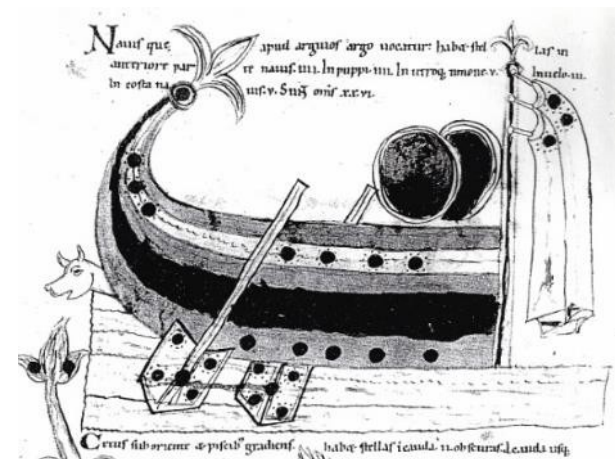
Klosterneuburg,  
 Stiftskirche, Ms 685

n.b. -- full boat; two rowing  
 oars; twisted sail; two shields



Zwettl, Stiftskirche  
 Ms 296

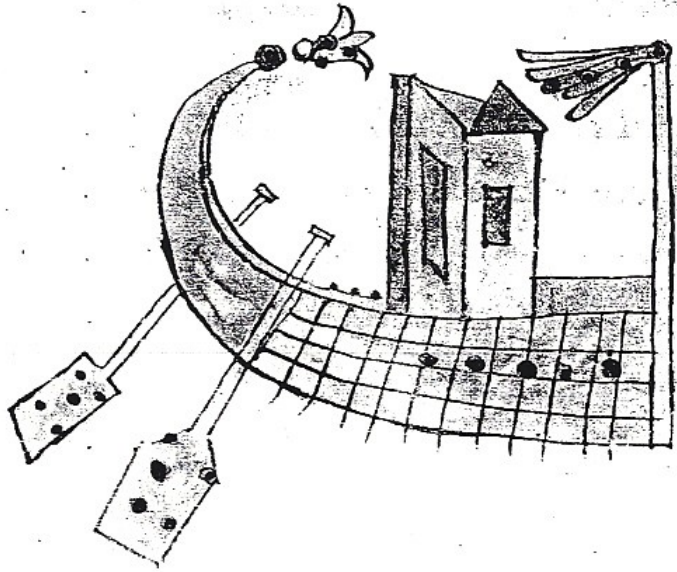
n.b. -- full boat with heads at both ends;  
 head below stern; two rowing oars;  
 twisted sail; two shields



Vatican, BAV  
 Vat lat 643

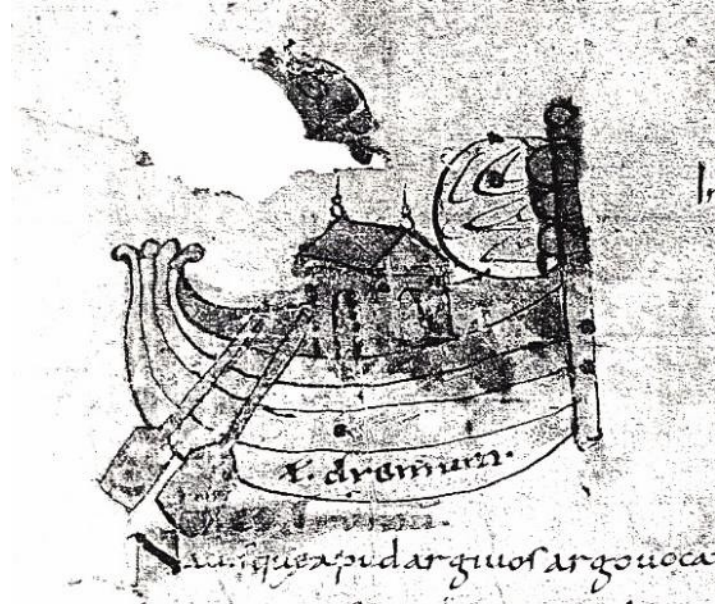
n.b. -- aphlaston; head below stern; two  
 rowing oars; two shields

III.



Laon,  
Bib mun, Ms 422

n.b. – aphiaston, hut, standard with pennant



Rouen, Bib mun,  
Ms 26

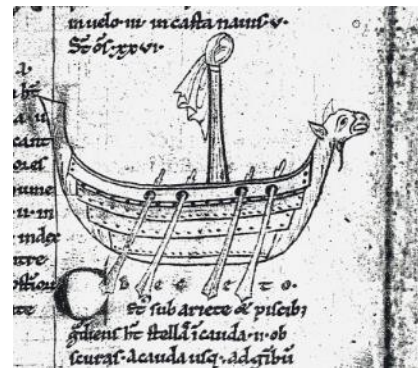
n.b. – hut, parachute sail



Singletons



Amiens  
Bib mun, Ms 222  
n.b. – twisted pennant



Durham, Cathedral Libr  
Hunter 100  
n.b. – full ship, nails in hull,  
animal head, twisted  
pennant



Montecassino,  
Badia, Ms 3  
n.b. – hut; fluttering pennant



Freiburg-im-Bresgau  
Ms 35  
n.b. – man paddling boat, twisted sail

1a.



Berlin, Staatsbibl,

Ms lat 130 (Phill 1832)

n.b. – triple ram, fold-over sail; oars as lines

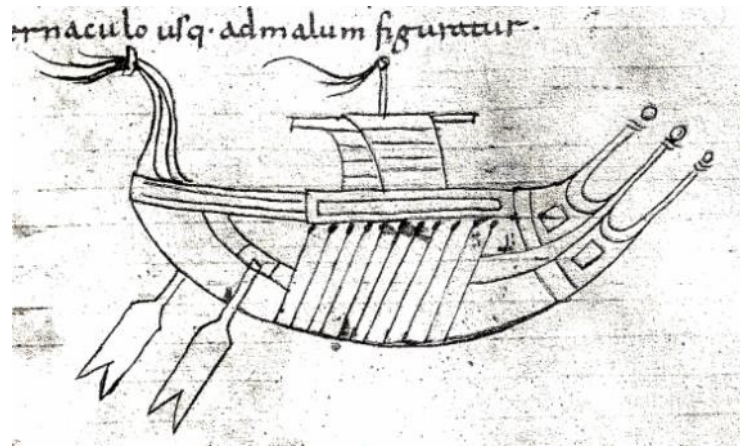


Berlin planisphere



Madrid, Bib Nac  
Ms 3307

n.b. – triple ram, fold-over sail; oars as lines



Monza, Bib capit  
Ms F. 9/176 (246)

n.b. – triple ram, fold-over sail; oars as lines



Monza hemisphere



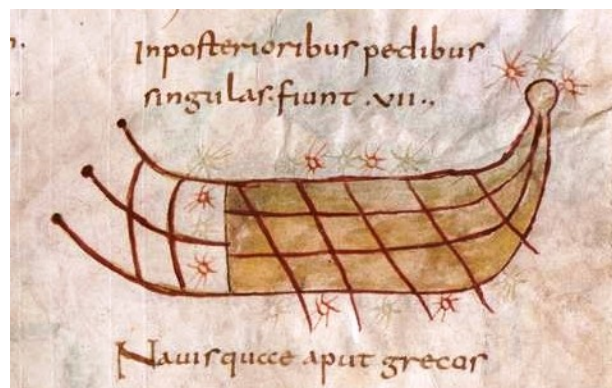
Ib.



Vatican BAV,  
Vat lat 645

n.b. – triple ram, fold-over sail; oars as lines

II.

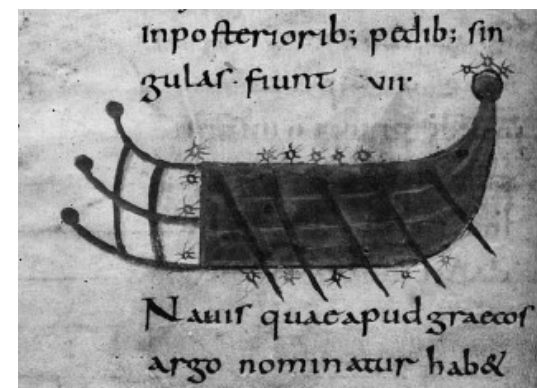


Munich, Staatsbibl.  
Ms clm 210

n.b. – no sail, simplified and reversed



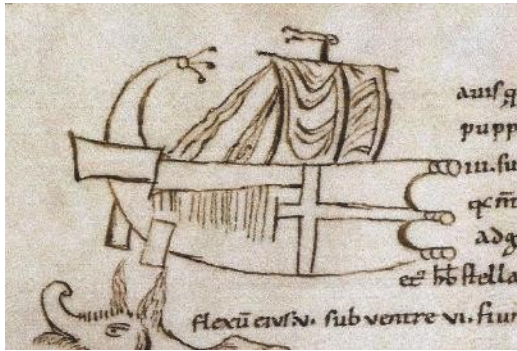
planisphere



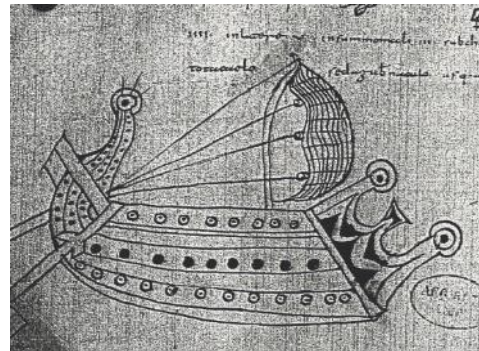
Vienna, ONB  
Vindob 387

n.b. – no sail, simplified and reversed

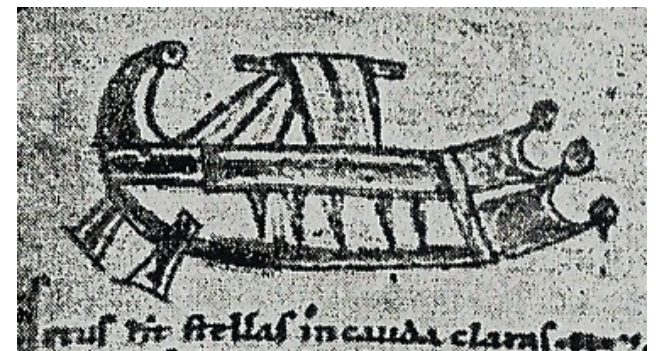
III.



Austin TX, Harry Ransom,  
Univ of Texas, Ms 29  
n.b.— aphlaston, triple ram, folded sail

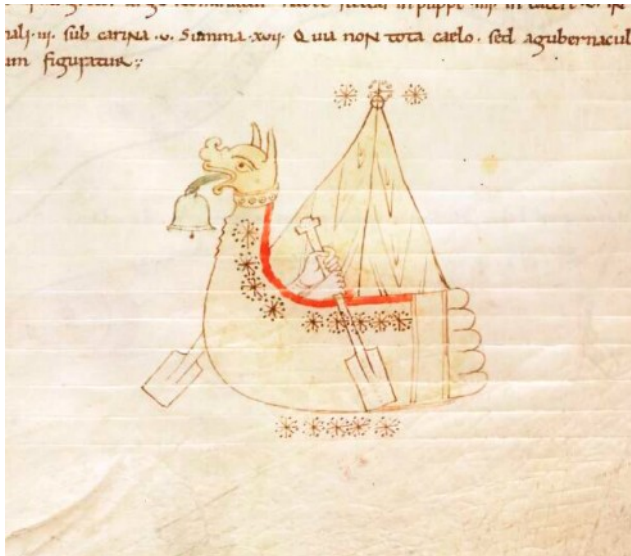


Paris BN, lat n.a. 1614  
n.b.— aphlaston, triple ram, parachute  
sail; stylised nails?



St Petersburg, Nat Libr  
Ms Q v IX, no 2  
n.b.— aphlaston, triple ram, folded sail

IV.



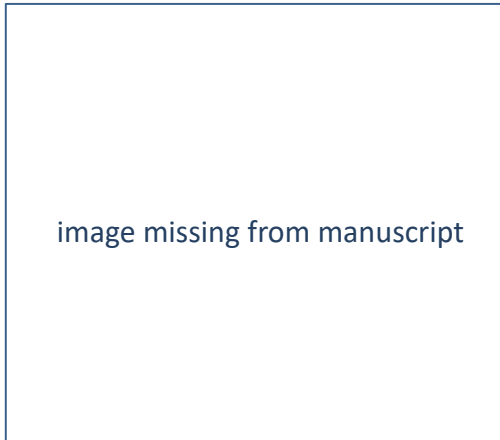
Paris BN lat 12117  
n.b.— animal head with bell' oar with hand;  
pyramidal sail



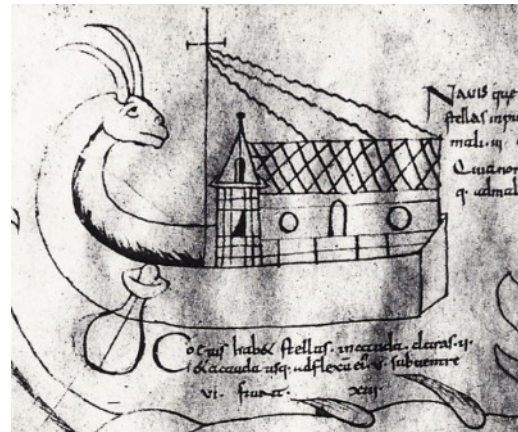
Vatican BAV,  
Reg lat 309  
n.b.— animal head; pyramidal sail; triple ram



V.



Los Angeles, Getty Mus  
Ludwig XII, 5

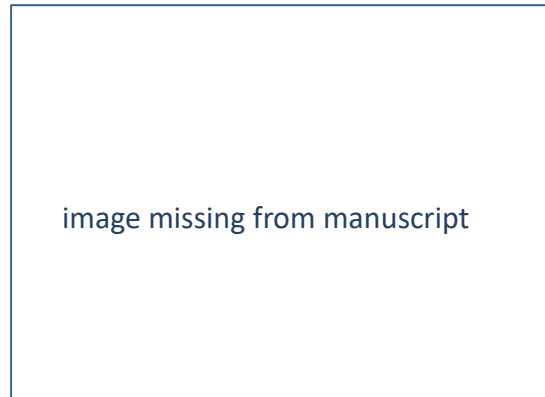


Paris BN,  
lat 8663  
n.b. – goat's head, mast with cross, building

Singletons



Vienna, ONB  
Vindob 12600

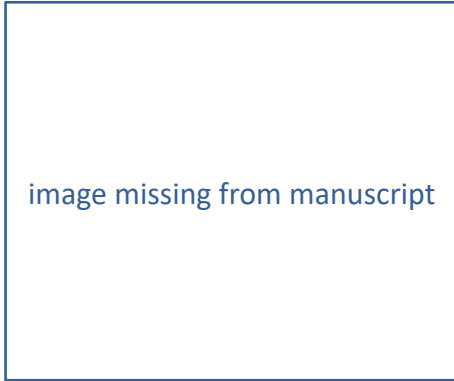


Reykjavik  
Ms 1812

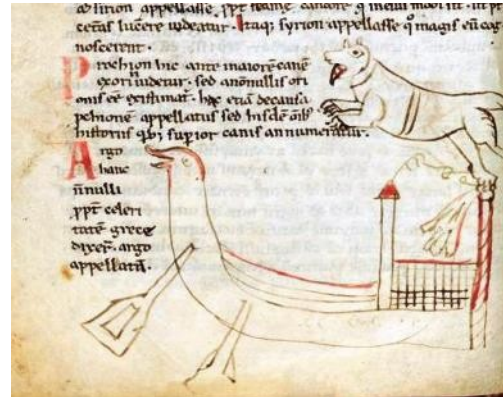
# Hyginus

# Navis

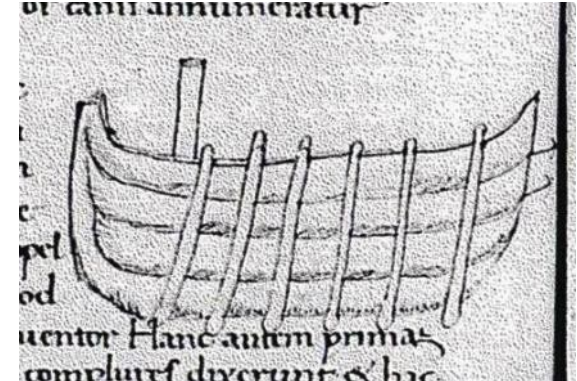
Ia.



S Paul im Lavantthal  
Ms 16/1 (XXV. 4. 20)

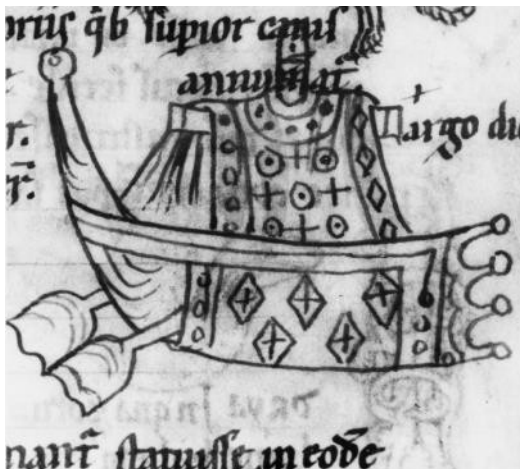


Florence, Bibl. Laurenziana  
Ms. Plut. 29.30  
n.b. – animal head; animal skin from post

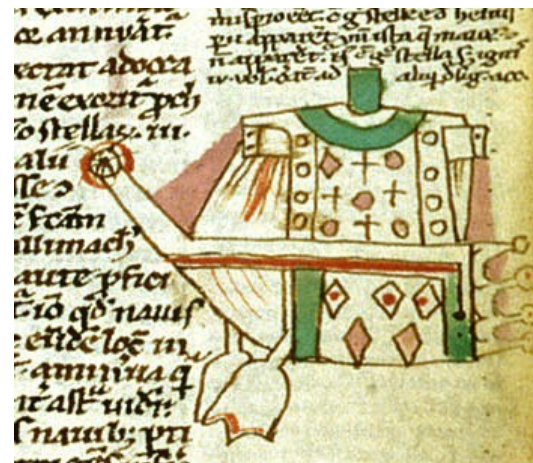


Leiden, Univ.-bibl.  
Voss 8°18  
n.b. – clinker planks

Ib.



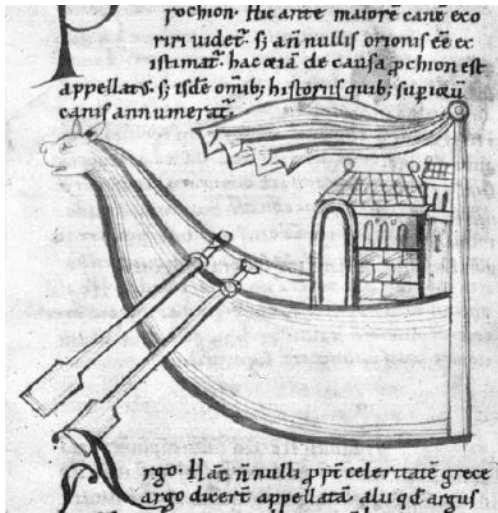
Wolfenbüttel, Herz Aug.  
Ms. 18. 16. Aug 4° n.b. – aphiaston;  
quadruple ram; dalmatic-like sail



London BL  
Arundel 339 n.b. – aphiaston; quadruple  
ram; dalmatic-like sail



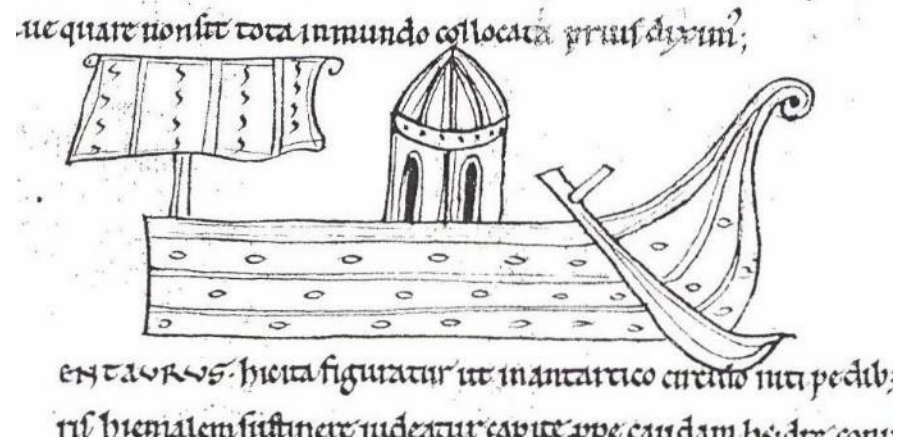
Ic.  
(singleton)



Vienna ONB  
Vindob 51

n.b.— animal head; buildings; pole with fluttering pennant

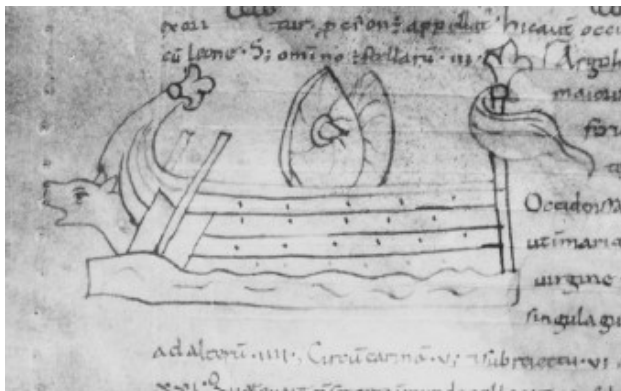
II. (singleton)



Leiden Univ-bibl  
Voss lat 4° 92

n.b.— reversed; nail marks in hull (?); paddling/steering oar at rear

III.



Leiden Univ-bibl  
Voss lat 8° 15

n.b.— animal head at water line; fleur de lis aplaston; two shields; pole with fluttering pennant



Vatican BAV  
Reg lat 123

n.b.— two shields; fleur de lis aplaston pole with fluttering pennant

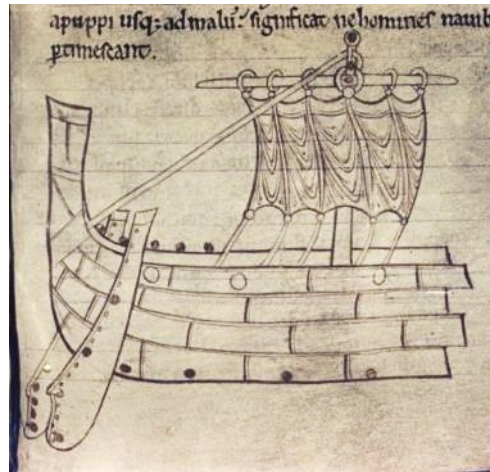


planisphere

IV.



Oxford, Bodleian Libr  
Bodley 614  
n.b. – animal head, broken timbers



Oxford, Bodleian Libr  
Digby 83 (SC 1684)  
n.b.– broken timbers

V. (singleton)

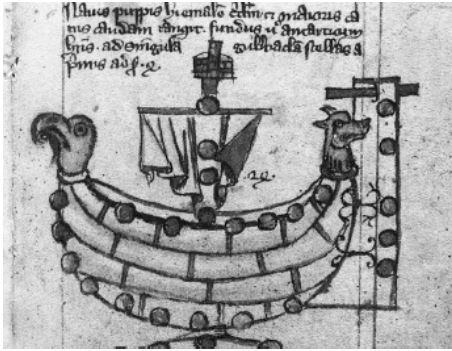


Baltimore, Walters Art Gallery  
Ms 734  
n.b.– animal head, lashed sail; 4 oars

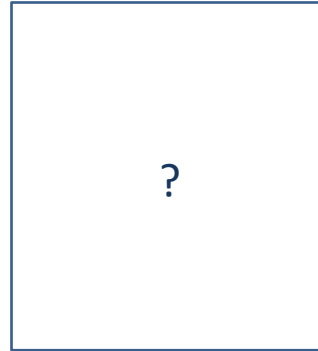


VI. (singleton)

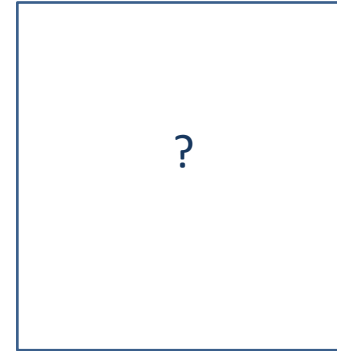
VI- related– German Star Books (‘secundum Hyginum’)



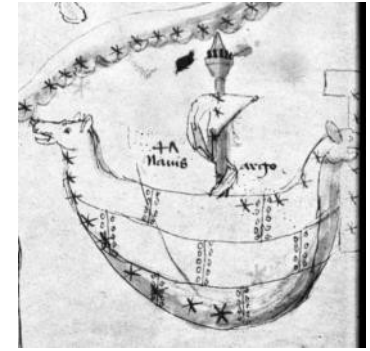
Berlin, Staatsbibl.  
Ms 8° 44 (Rose 962)  
n.b. –two heads; external tiller; on fish’s back



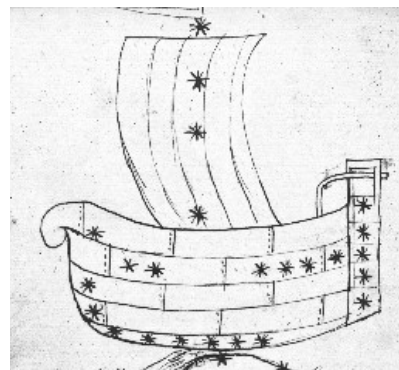
Lyon, Bib mun, Pal des  
Arts 45



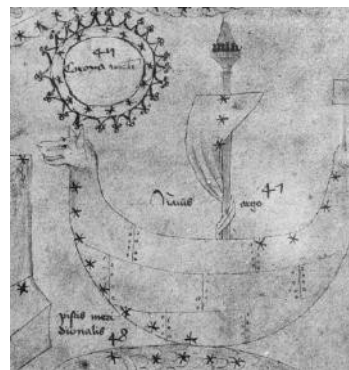
Lyon, Bib mun  
Ms 172



Munich, Staatsbibl  
Germ 595  
n.b. –two heads; external tiller; twisted sail



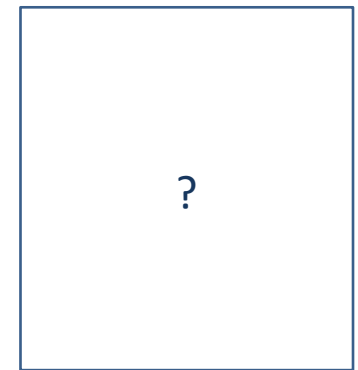
Munich, Staatsbibl  
Clm 59  
n.b.– on fish’s back; external tiller



Vatican BAV  
Pal.lat. 1369  
n.b. –two heads; twisted sail; on fish’s back



Vatican BAV  
Pal.lat. 1389



Wolfenbüttel Herz Aug  
Guelf 81 24 Aug 1o

VII. (singleton)



London BL,  
Roy Ms 13. A. XI

n.b.– trefoil 'aphlaston'; hut; shields; rowing oars; knotted fabric on pole

VIII. (singleton)



Munich, Staatsbibl.  
CIm 10270

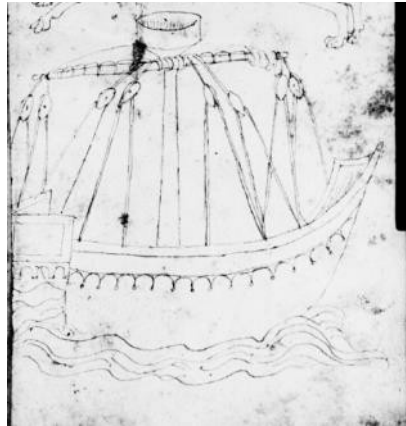
n.b. – folded sail; rowing and steering oars



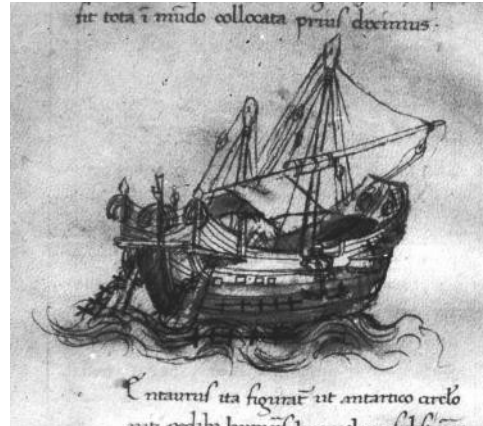
IXa.



Cambridge, Fitzwilliam Mus  
Ms 260



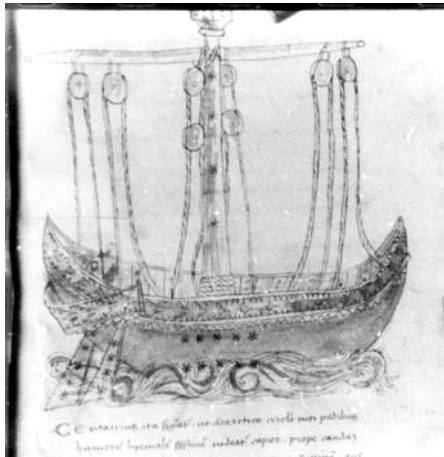
Florence, BN  
Magl XI. 141  
n.b.— pulleys



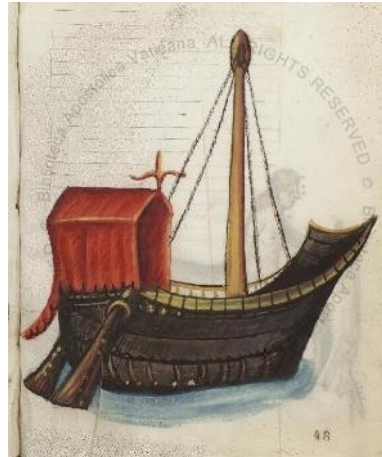
Milan, Bibl. Ambrosiana  
T. 47 sup  
n.b.— pulleys



Oxford, Bodleian Libr  
Can. class lat 179  
n.b.— pulleys



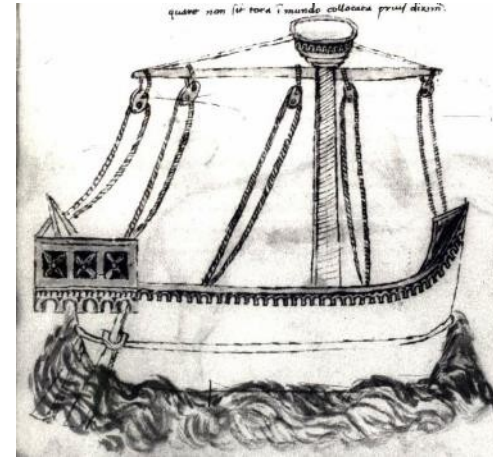
Siena, Bib com  
Ms L. VI. 25  
n.b.— pulleys



Vatican, BAV  
Vat lat 3109

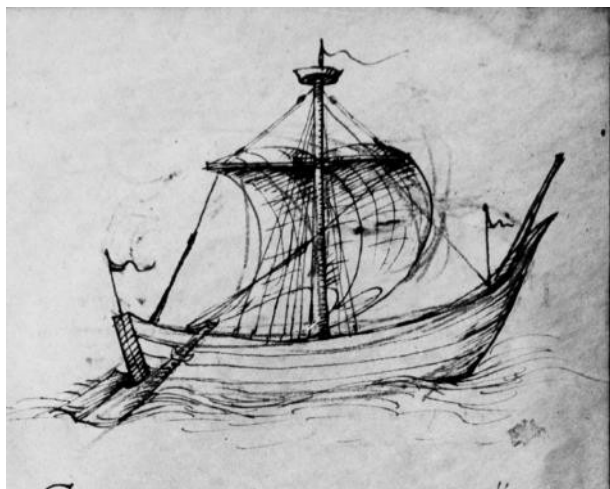


Vatican, BAV  
Vat lat 3109  
n.b.— reversed



Verona, Bibl capitolare  
Ms CCLXI  
n.b.— pulleys

IXb.

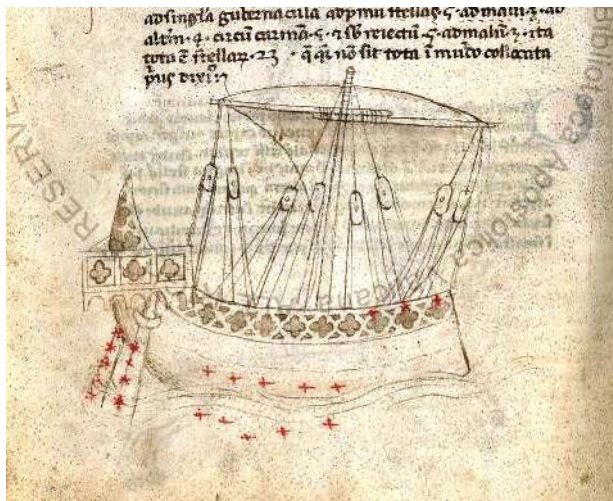


Oxford, Bodleian Library  
Can misc 46



Milan, Bibl Trivulziana  
N. 690 (E 83)

IXc.



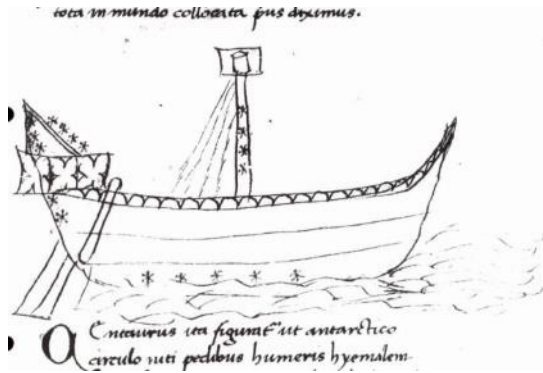
Vatican, BAV  
Vat lat 3110  
n.b.- pulleys



Florence, Bib Naz  
Magl XI. 114,1



IXd. (distant singleton)

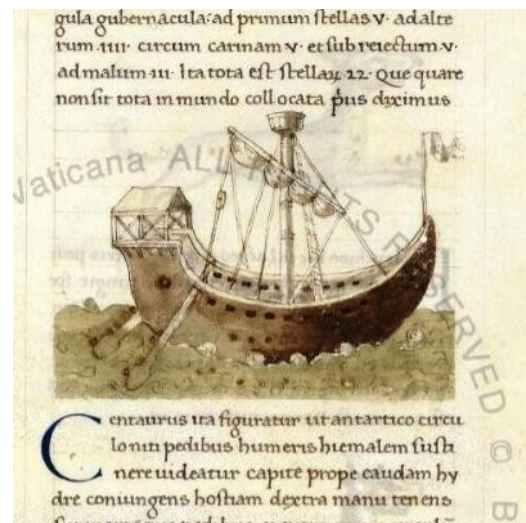


Florence, Bibl Laurenziana  
Ashburnam 1148

IXe.



Pavia, Bibl Univ  
Aldini 490

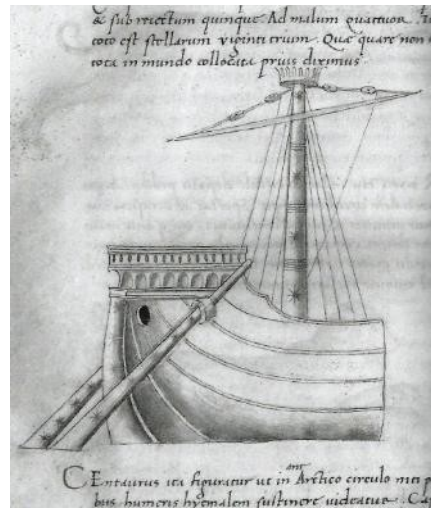


Vatican., BAV  
Urb lat 1358

IXf.



New York, Public Library  
 Spencer Ms 28  
 n.b.— half ship



Freiburg, Andreas-Möller-Bibl  
 CI XI 4o 9

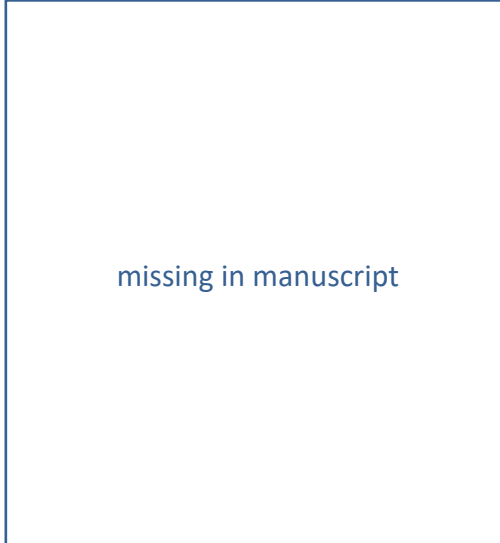
IXg.



Florence, Bib Naz  
 Plut 89, sup 43  
 n.b.— oars and external rudder

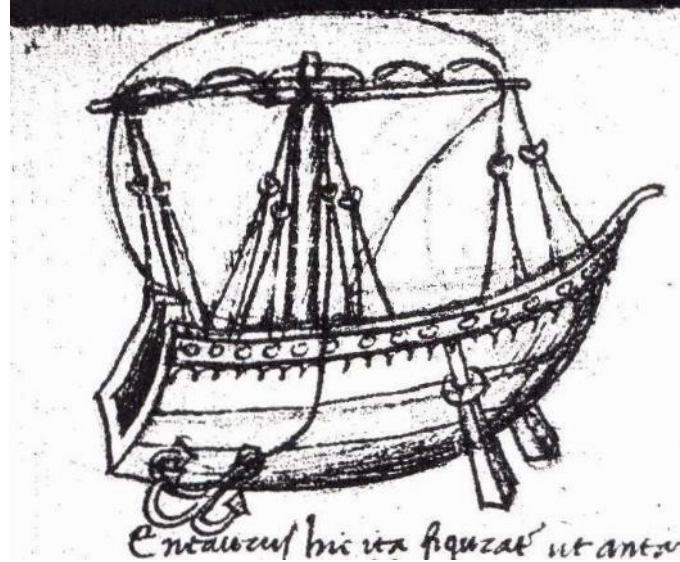


X. (singleton)



Vatican, BAV  
Chigi H. IV. 20

XI. (singleton)



Cortona, Lib del Comune  
Ms 184 (256)  
n.b.- anchor

Venice— Ratdolt, 1482



cf Michael Scot



Vienna, ÖNB  
Vindob 3111

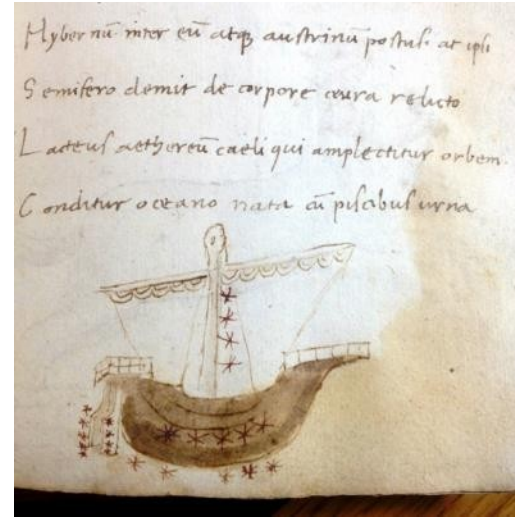


1a.



Rimini, Cassa di Risparmia  
(London Sotheby's sale 1992)

1b.

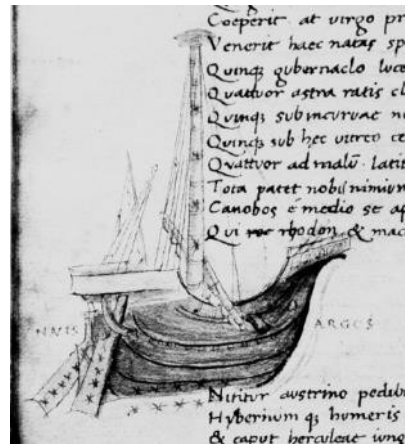


Cambridge, CUL  
Dd IV 64

11a.



Oxford, Bodleian Libr  
Bodley 646  
n.b. – labels; lowered yard-arm



Parma, Bib Palatina,  
Parm 1008  
n.b. – labels; lowered yard-arm

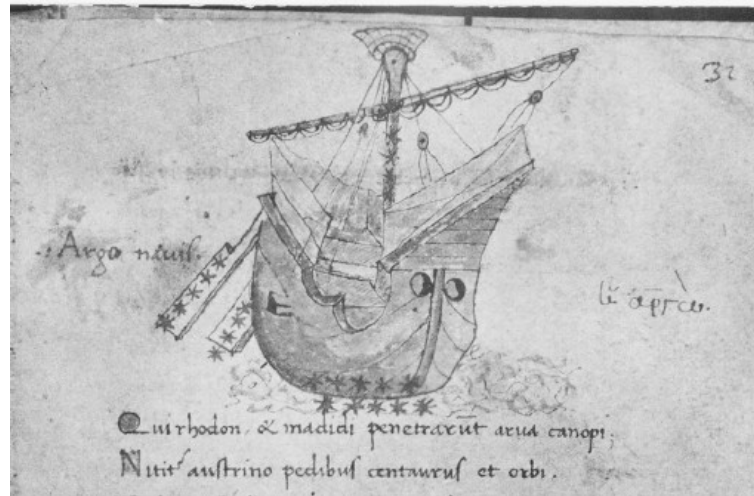


Venice, Bibl Marciana  
XII, 194 (4148)  
n.b. – labels; lowered yard-arm

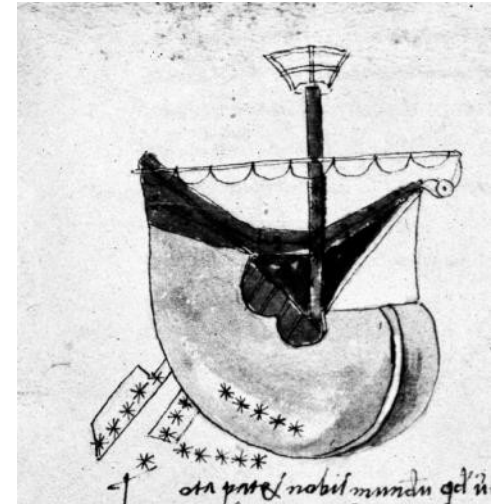
IIb.



Parma, Bibl Palatina  
 Parm 27  
 n.b.- round-hull, full ship



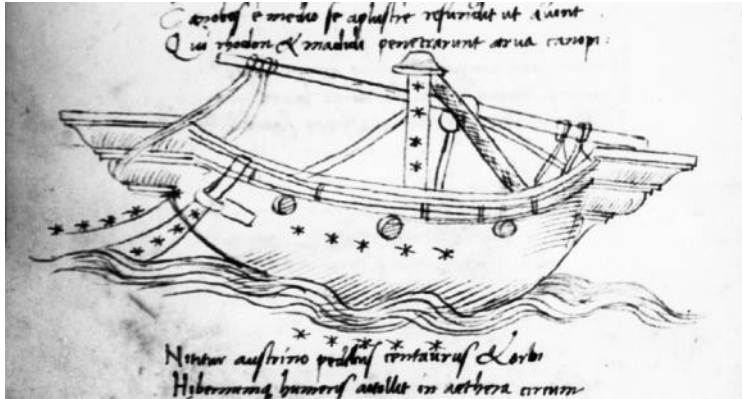
Rome Bibl Casanatense  
 Ms 4059  
 n.b.- round-hull, full ship



Munich, BSN  
 Clm 15743  
 n.b.- round-hull, full ship



III.



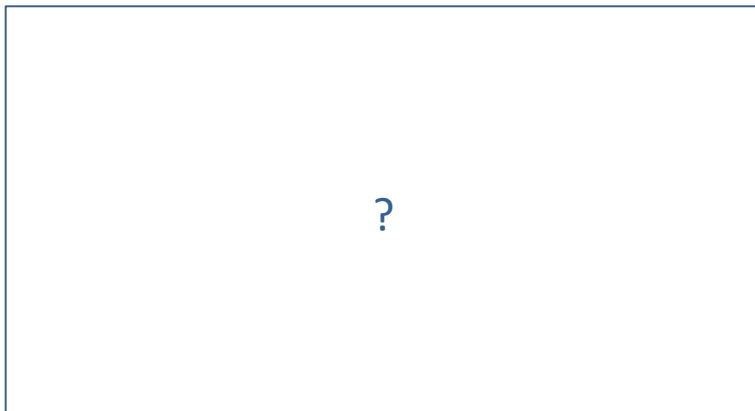
Bologna, Bibl Com  
Ms 173

IV.



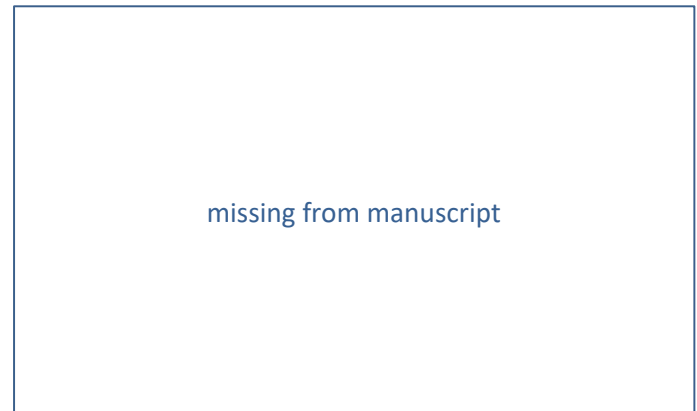
London, Wellcome Coll  
WMS 122

V.

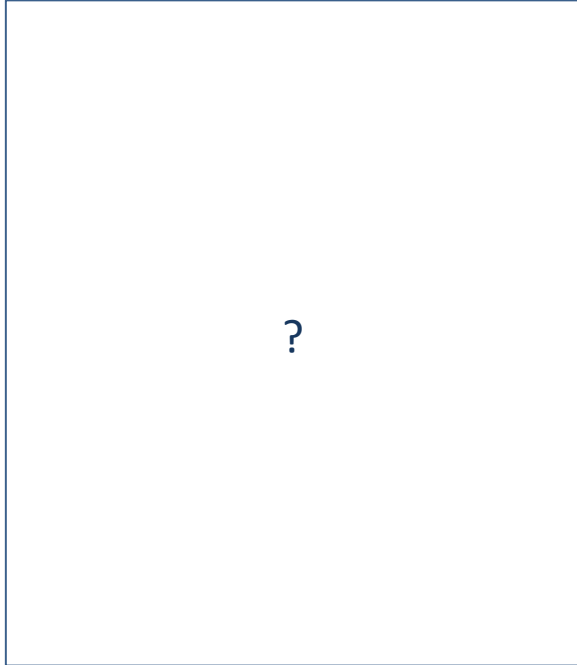


Ravenna, Bib Classense  
Ms 120

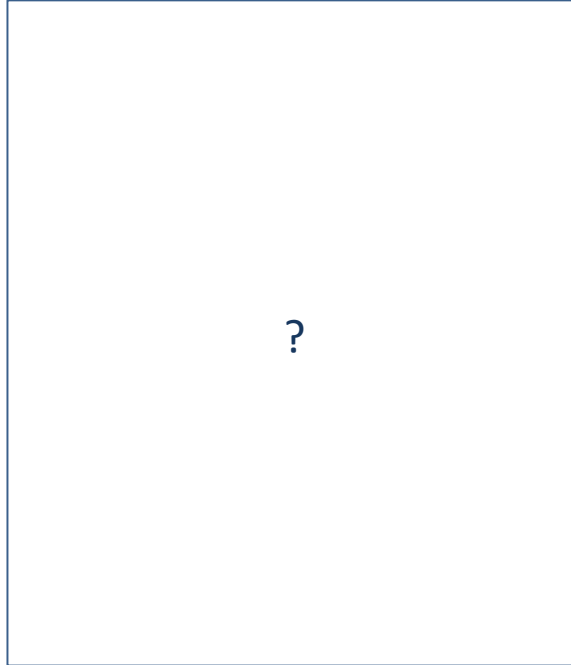
VI.



Florence, Bibl Marucelliana  
Ms C. CCLI



Krakow, Rps BJ 3706



Padua, Bibl. Universitaria

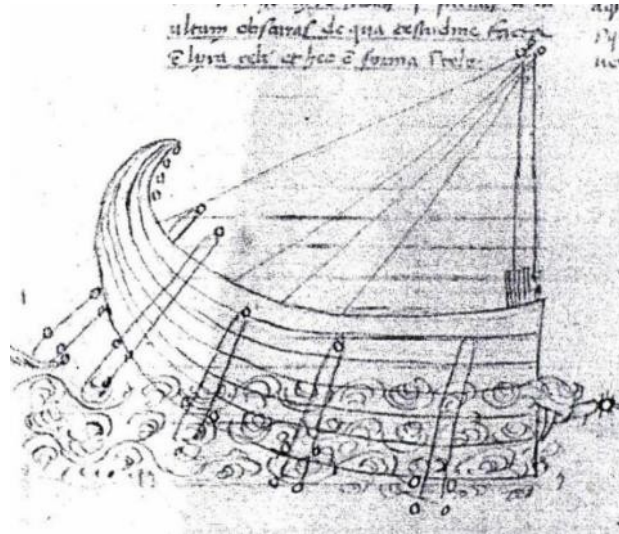


N Italian Group – Ia.



Munich, Staatsbibl Clm 10268

n.b.— turtle at cut off; mast at one end with stays



Oxford, Bodleian Libr Bodley Ms 266

n.b.— turtle at cut-off; mast at one end with stays

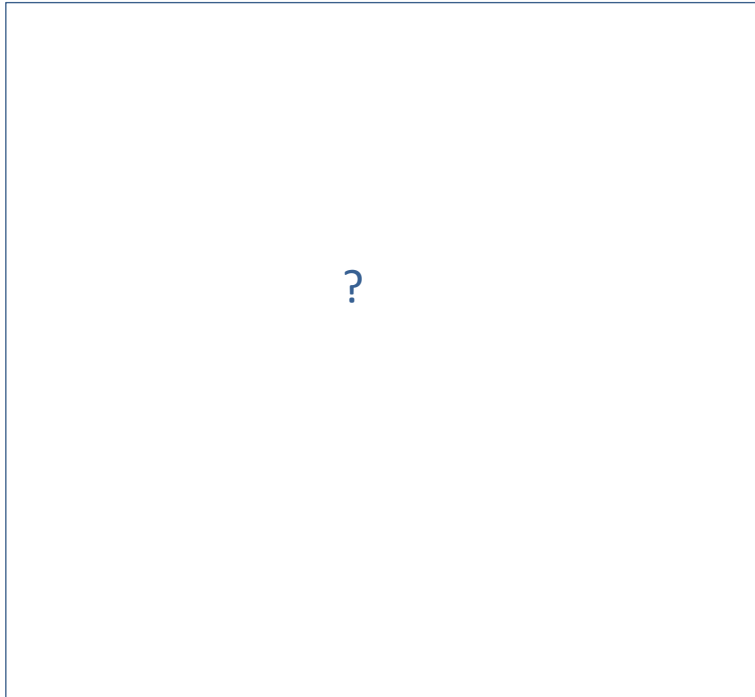
Navis, que Naviss appellata est locum tenet in celo post caudam Magni Canis et sub pedibus Leonis et ante Caput Ydre.

...

In capite mali posterioris habet .3., in puppe .4. bene lucidas, in quolibet temone deorsum .5. parvas et aliquantulum obscuras, in castroma, id est sponda vel propra desuper .4., sub carina .5.

Testudo enim est prope quasi proram navis et habet in se stellas parvas quatuor et multum obscuras. De qua testudine facta est Lira celi. (ed Ackermann 2009, pp 224-26)

N Italian Group – Ib.



Vatican, BAV  
Vat lat 4087

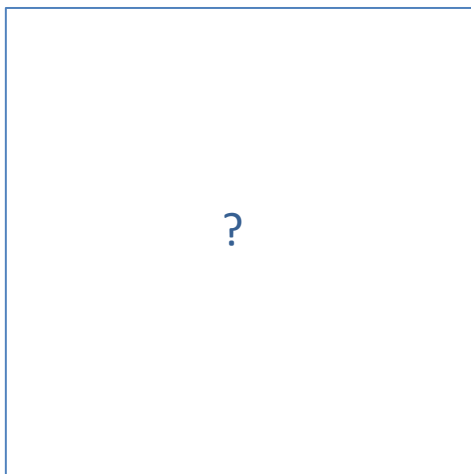


St Petersburg, Nat Libr  
Ms lat F V IX, no. 1

n.b.– animal head at cut-off;  
mast at one end with stays

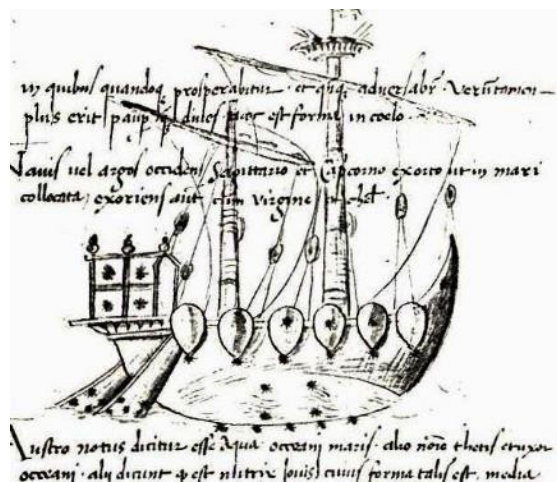


N Italian Group – Ic.



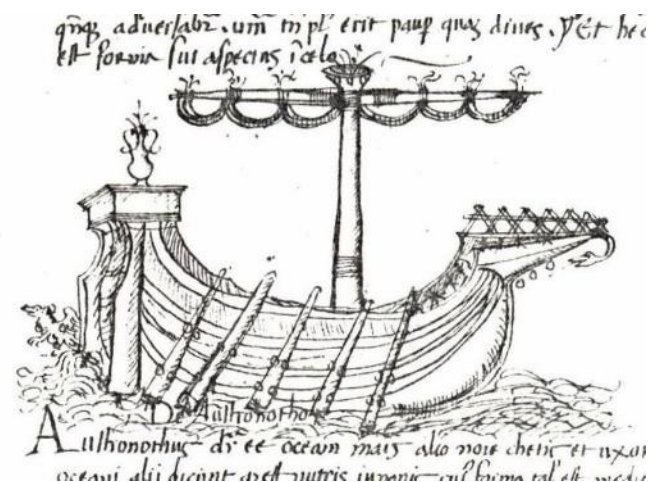
Warsaw, BN,  
Baw T

N Italian Group – Id.



Vienna, ONB  
Vindob 3394  
n.b. – pulleys; shields

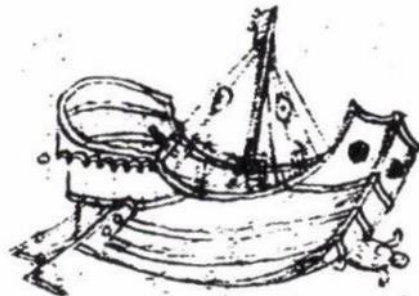
N Italian Group – Ie.



Padua, Bibl Seminario  
Cod. 48  
n.b.– goose head at bow; urn on raised poop

Venetian Group – IIa.

Venetian Group – IIb.

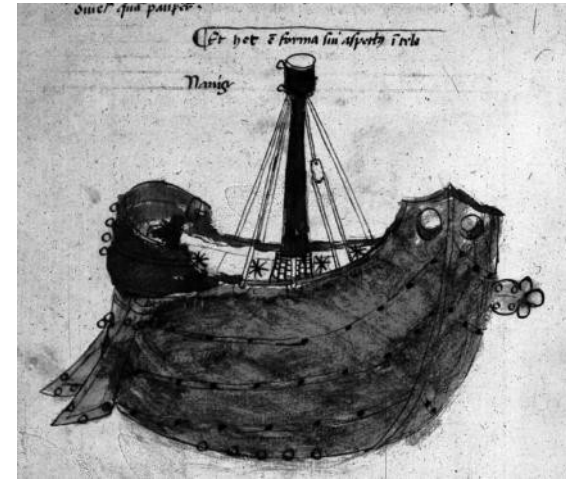


Navis atq[ue] sic adde[re]ta locum  
 tenet i[n] celo post cauda[m] magni  
 canis sub pedibus leonis et ante  
 caput ydri. Quia vix am[er]am no

London BL  
 Add 41600

London, Wellcome Coll  
 Ms 509

n.b.— pulleys, holes in bow; turtle in front of bow



Milan, Ambrosiana  
 Ms I 90 sup

n.b.— pulley, holes in bow; turtle in front of bow

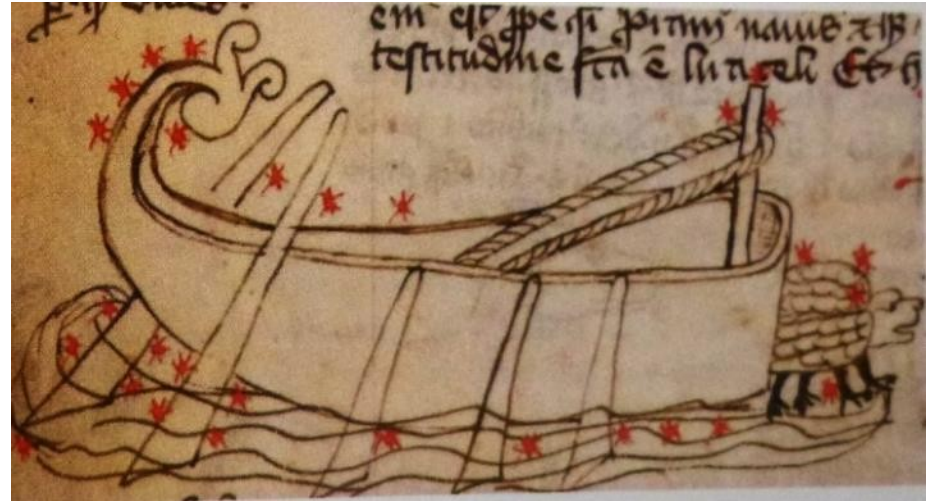


Bohemian Group – IIIa.



Vienna, ONB  
Vindob 2352

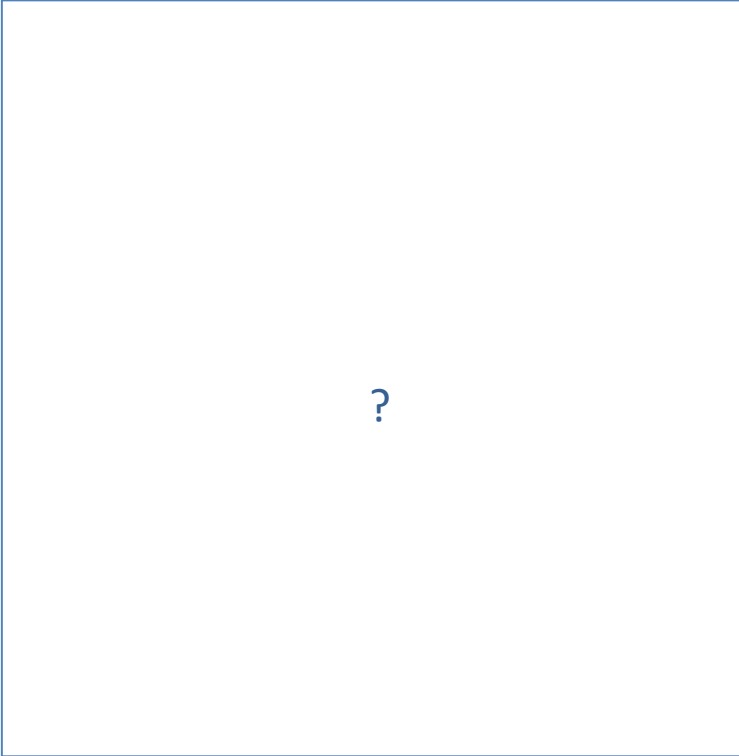
n.b. – aphlaston; animal head to right at ram  
(?) ; post with rope



Vienna, ONB  
Vindob 2378

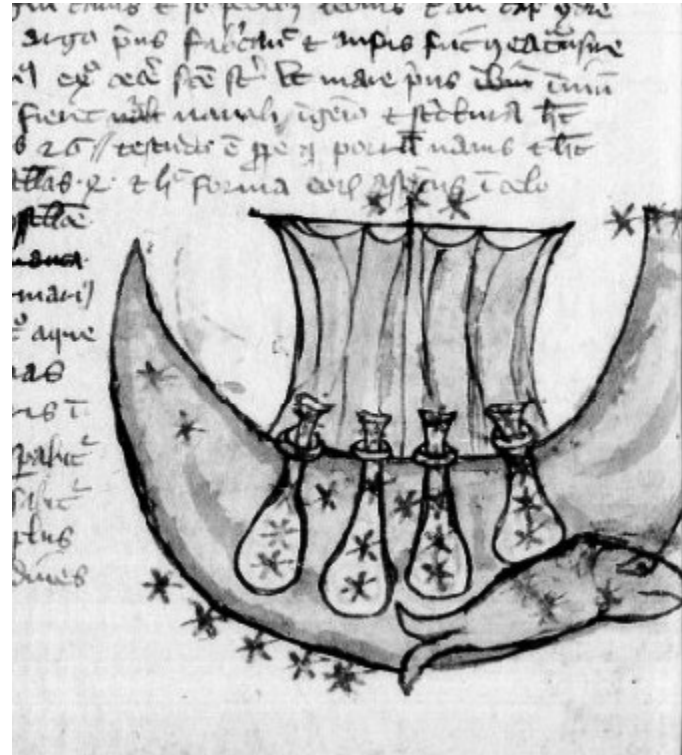
n.b. – aphlaston; turtle to right; post with rope

Bohemian – IIIa.



Prague NK,  
Ms III. C. 2

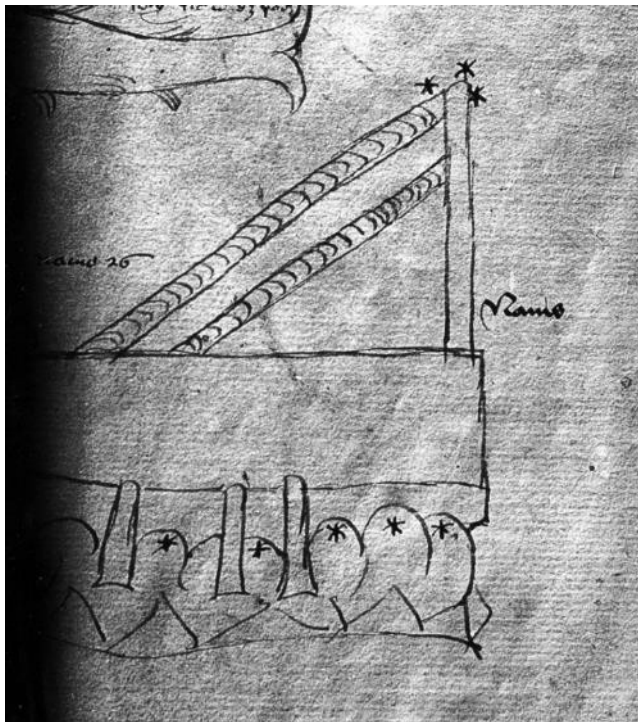
Bohemian – IIIb.



Paris BN  
lat 7408A

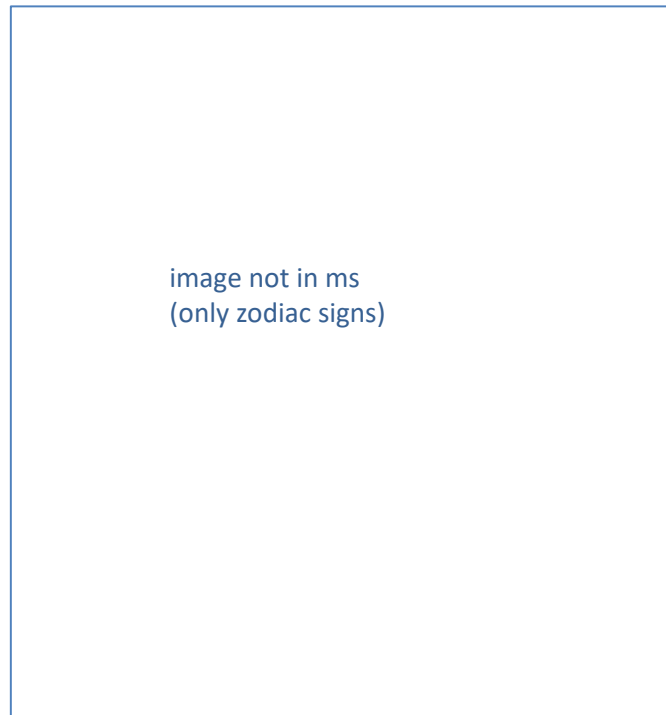


Bohemian – Illc.

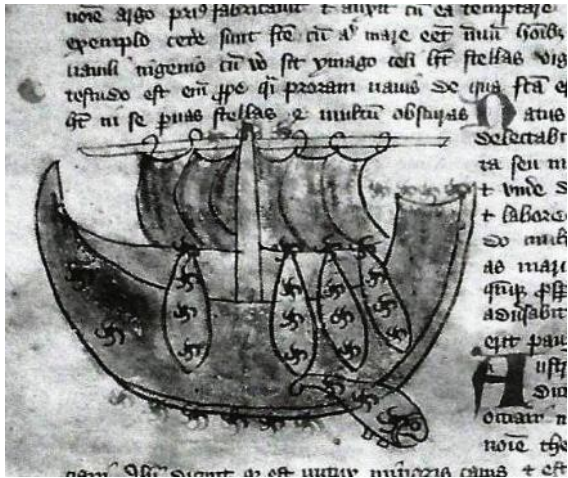


Vienna, ONB  
Vindob 5442

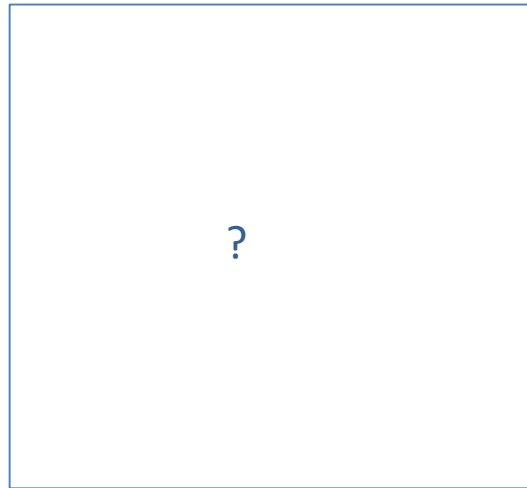
Bohemian – Illd.



Cambridge, MA  
Harvard, Houghton  
Libr., Typ 43



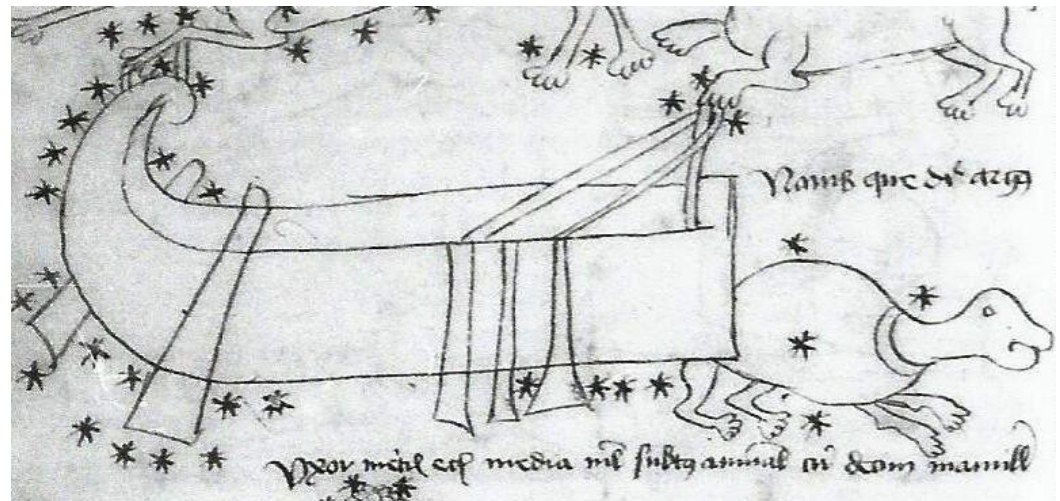
Edinburgh, Royal Observatory  
Ms Cr 3. 23  
n.b. – loose oar as fish



Florence, BNC  
Magl. XXII, 22



Klosterneuburg, Augustiner Ch-Stift,  
Ms CCI 125



Krakow, Bibl Jagiellonska  
Rps 573  
n.b. – 'turtle' at cut-off





Prague NK,  
 Ms XXVI A 3  
 n.b. – turtle as 'top hat'



Seville, Bibl. Columbina  
 Ms 7.7.1

German mss – IVa.



Darmstadt, Hess Hochschulbibl.  
Ms 266  
n.b.– man in full boat, ladder



Paris, BN  
Allem 106  
n.b.– man in full boat



Salzburg, Studienbibl  
2 G 8/13  
n.b.– man in full boat



Vatican, BAV  
Pal lat 1370  
n.b.– man in full boat, ladder



Berlin, Staatsbibl  
Ms germ fol 244  
n.b. – aphlaston (with 2  
'pennants'), pole with stays



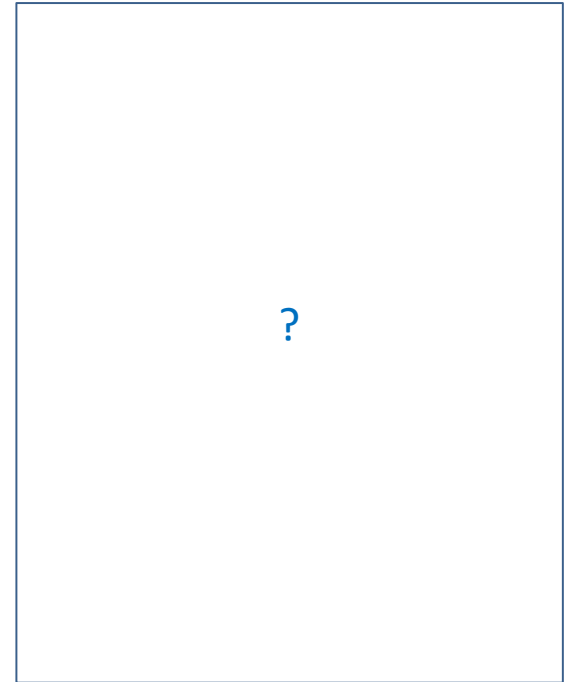
German mss – IVb.



Tubingen Univ-bibl.  
Ms d 2

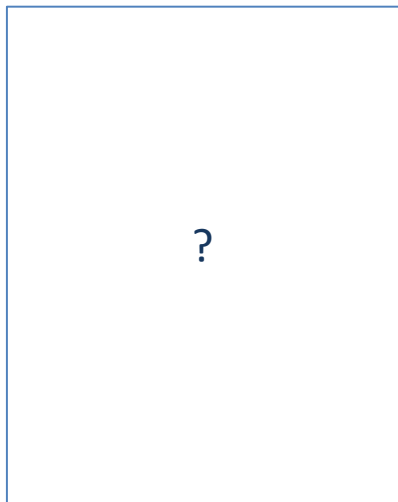


paranatlonta

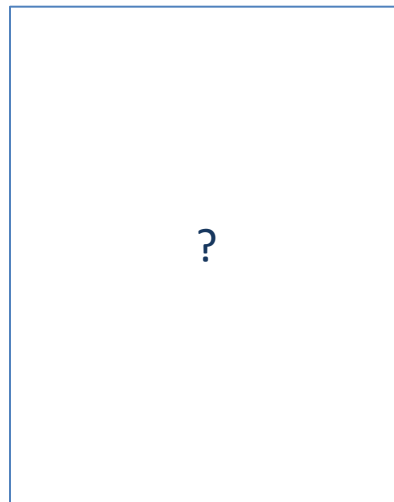


Wolfenbüttel, Herz Aug Bibl  
Ms Guelph 14 Aug 8°

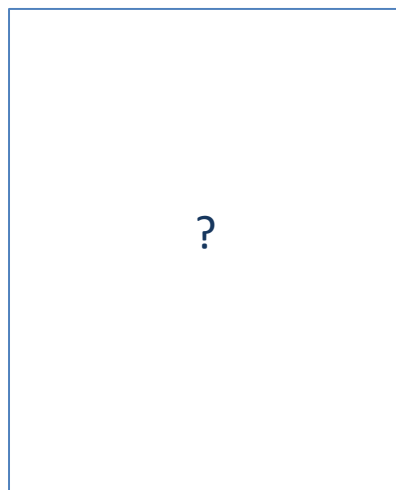
Michael Scot  
German mss – IVa.



Coburg, Bayerisches  
Landesbibl  
Ms 5



Edinburgh, Roy Obs Library  
Ms Cr 4 6



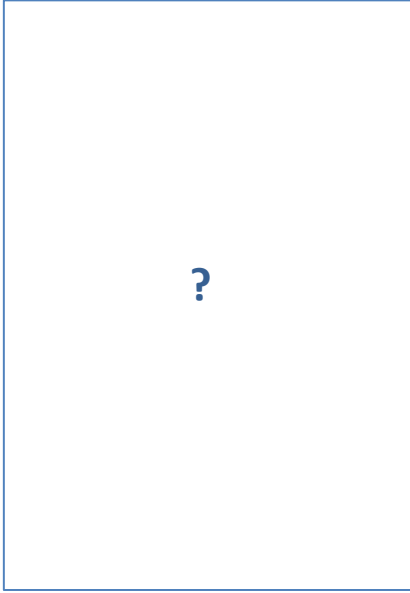
Freiburg, Univ.-bibl.  
Ms 458



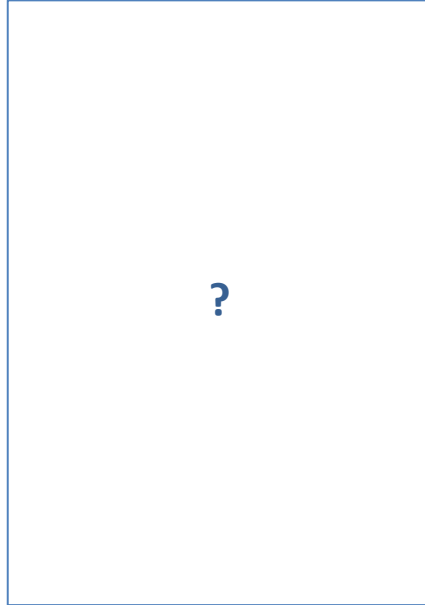
Heidelberg, Univ.-bibl.  
Pal germ 458



Michael Scot  
German mss – IVa.



Karlsruhe, Badische  
Landisbibl.  
Ms K 2790



Nürnberg, Germanisches  
Nationalmus.  
Ms 7082

Venice— Ratdolt, 1482



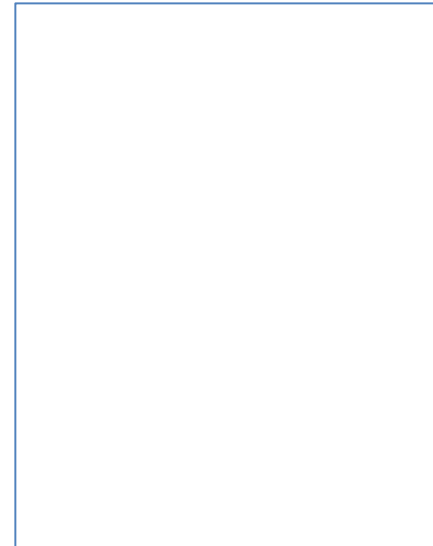
n.b. – double 'aphlaston'; post at middle with stays; turtle at cut-off

Bartolommeo da Parma



Cambridge, Emmanuel College  
Ms 70

n.b. – triple 'aphlaston'; post at middle



Metz, Bibl. Com.  
Ms 287



Fazio degli Uberti



Paris, BN,  
Ital 81

n.b.- post with stays; turtle at cut-off



Modena, Bibl. Estense  
Ms ital 483 (α. P. 47)

Alfonsine Tables (John Killingworth update)



London, BL  
Arundel Ms 66

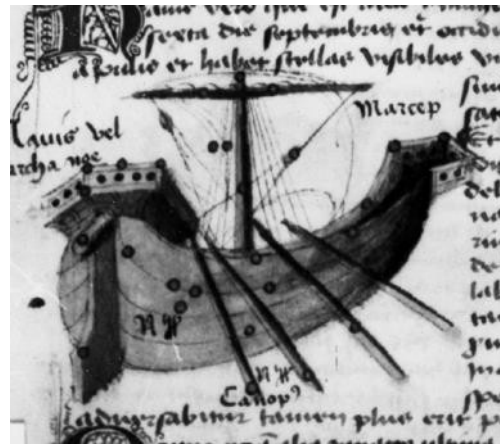
n.b. – full ship sails to the right with 3 soldiers and two boys on deck; one soldier with telescope; bearing flag of St George  
Stellacio puppis et dicitur Argo



Ludovicus de Angulo



St Gallen, Vadianische Libr  
Ms 427



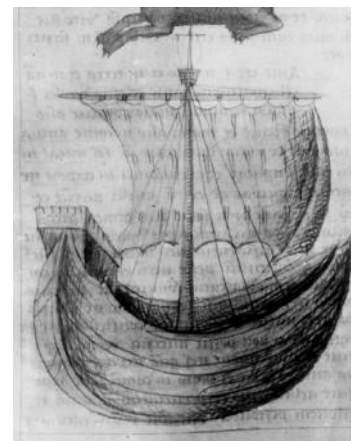
Madrid, BN  
Ms 9267



Florence, Bibl. Riccardiana  
Ms 3011

Ludovicus de Angulo

image not in ms  
(only zodiac signs)



Paris BN  
Lat 6561

Paris BN  
Fr 612

Paris BN  
Lat 7344



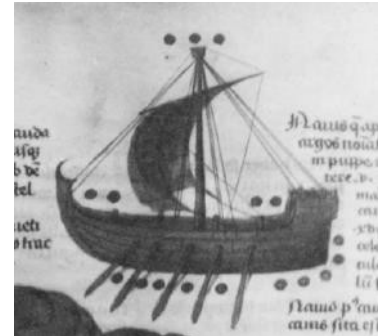
Hague Ms 72.A  
n.b.— triple ram; stylized oars, hook rudder



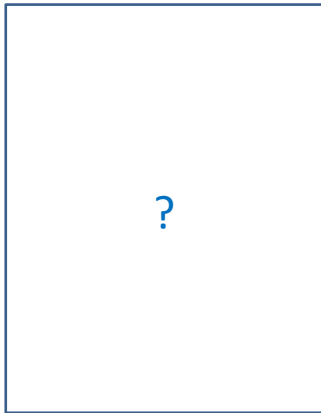
Hague Ms 128 C  
n.b.— triple ram; stylized oars, hook rudder



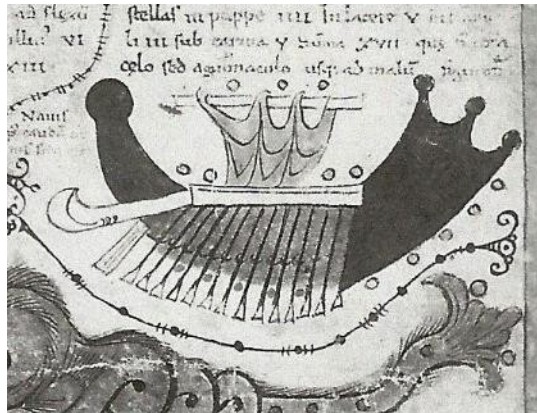
Paris, BN Lat 8865  
n.b.— animal head; wrapped sail



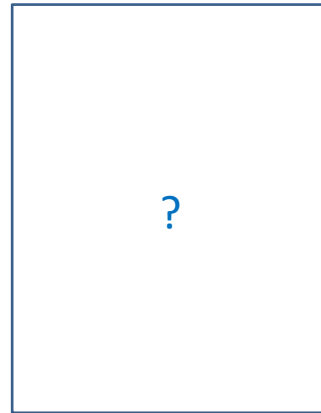
Chantilly 724 (1596)



Leiden, Univ-bibl Ms 1° 31



Ghent Ms 92  
n.b.— triple ram; stylized oars, hook rudder

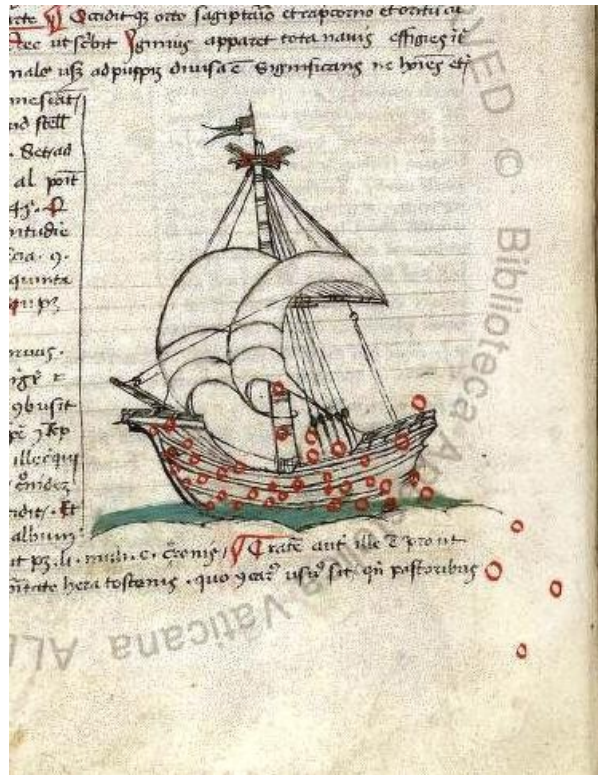


Paris, BN Allem 106



Wolfenbüttel, WDB, Ms Gud lat 1  
n.b.— triple ram; stylized oars, hook rudder





Vatican BAV  
Val Lat 3121



Madrid, BN  
Ms 1983

missing in manuscript



Florence, Laurenziana  
Aedil 170  
n.b. – half-ship to right, full sail, animal head

?

London, Lambeth Palace  
Ms 35



Florence, Bibl Laurenziana  
Plut 40, 53

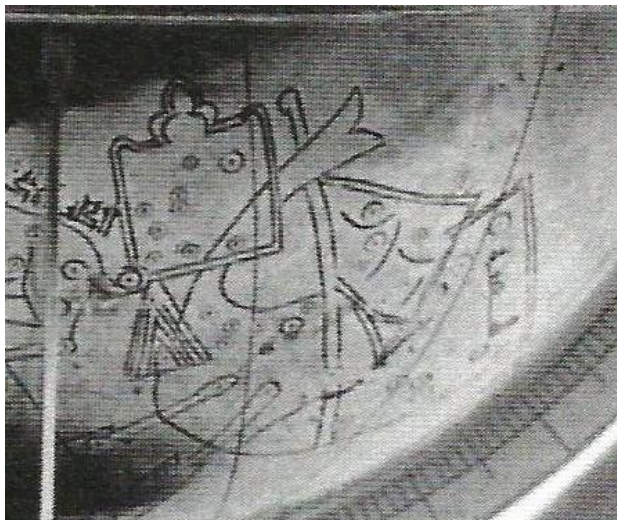


detail from planisphere



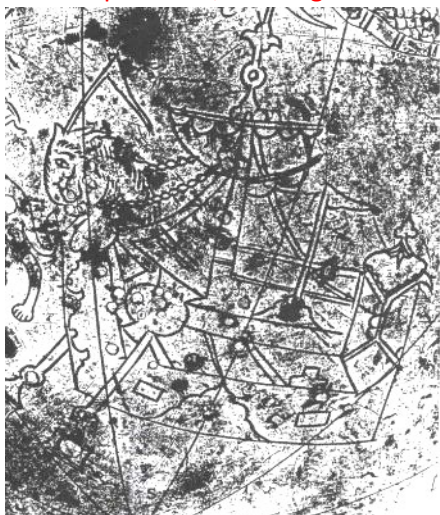
# Eastern Globes

# Navis



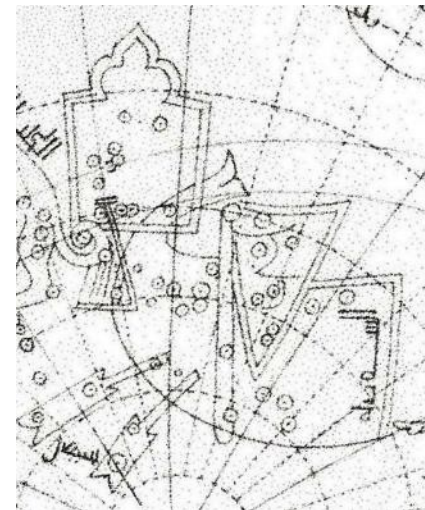
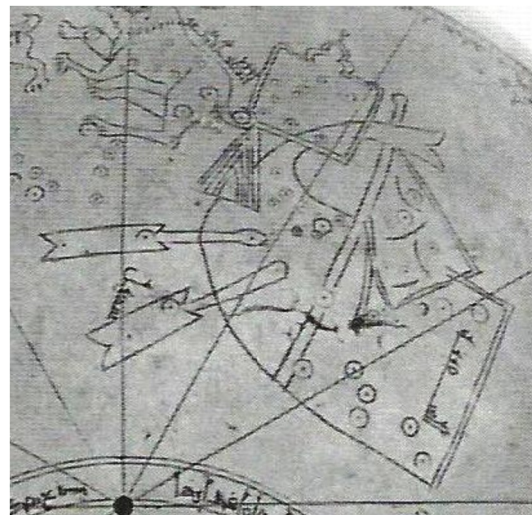
Florence, Mus delle Scienze, no. 2712  
dated 1025 AD

n.b.– aphiaston , steering oars

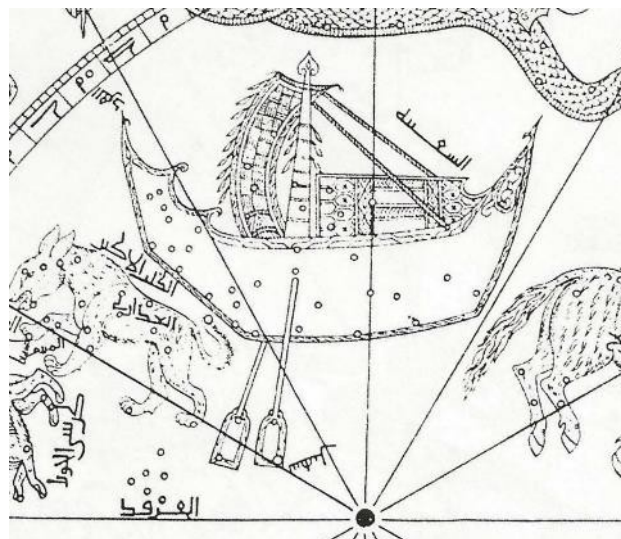


Smithsonian Mus, no 72-3085

n.b.– animal head, staff with flag,  
2 steering oars

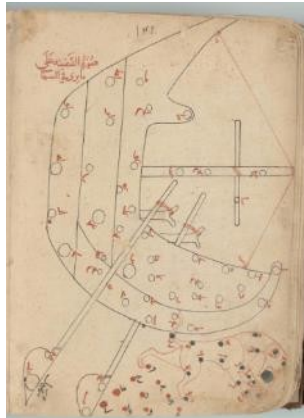
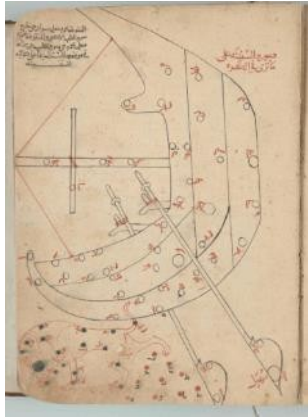


Paris, BN, A 325

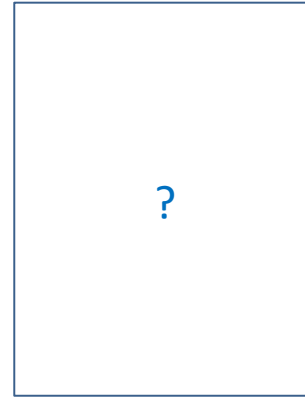


BM, Malcolm globe

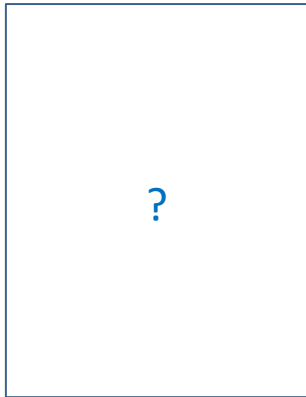
non-Latin Eastern mss (al-Sufi, *Kitāb suwar al-kawākib al-tābita*)



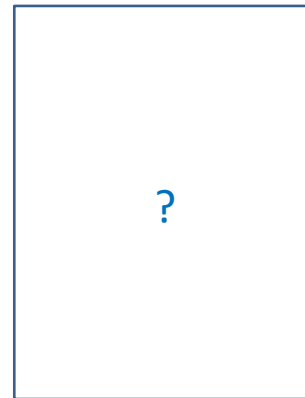
Doha, Mus of Islamic Art  
Ms 2. 1998. SO (= Sotheby's 1998, lot 34)  
Dated April 1125 AD; Baghdād  
n.b.– full ship; 2 oars; *Canis maior* (?) at stern



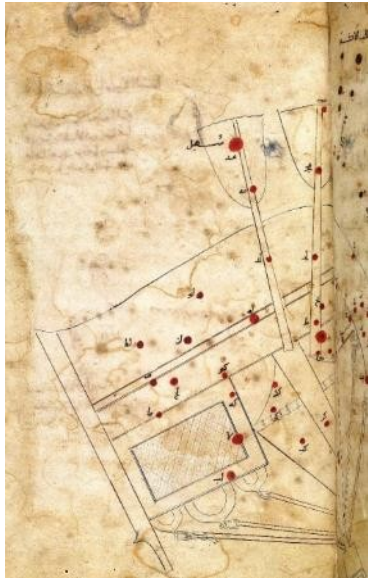
Istanbul, Süleymaniye Libr  
Ms Fatih Kütüphanesi 3422  
1125/26 AD; Mārdin



Istanbul, Topkapī Sarayī  
Ahmet II 3493  
1130-31 AD, Mayyafariqin, SE Turkey



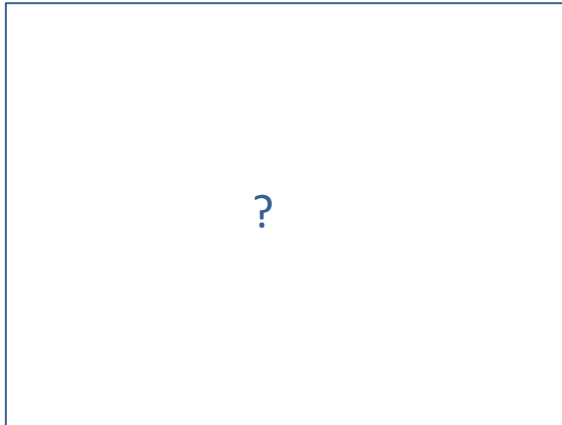
Oxford, Bodleian Libr  
Huntington Ms 212  
1170/71 AD; Mosul



Oxford, Bodleian Libr

Ms Marsh 144

1009-1010 AD; Shiraz (?), Iran n.b.– image crosses bi-folio (only one view)



Berlin, Staatsbibl.

Ms qu or 704

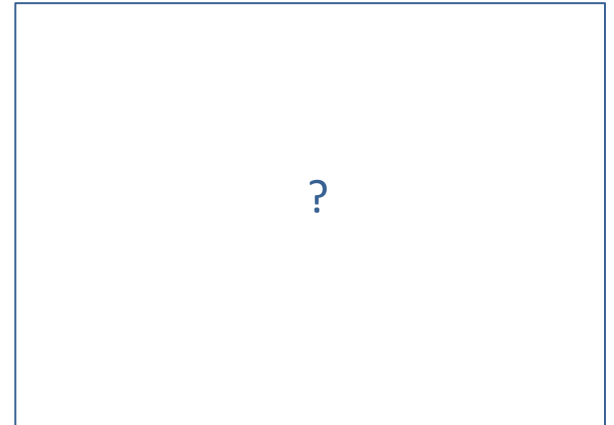
c. 1203



Vatican, BAV

Ross 1033

1224 AD, Ceuta (?) N Africa

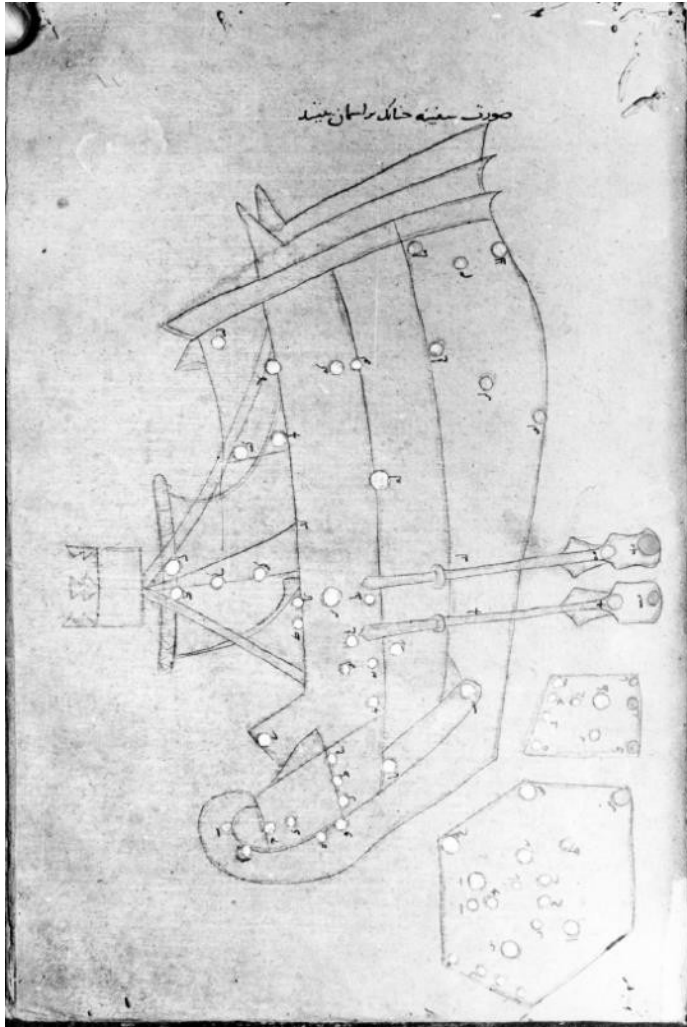


Berlin, Staatsbibl.

Landberg 71

Aug/Sept 1233; Mosul





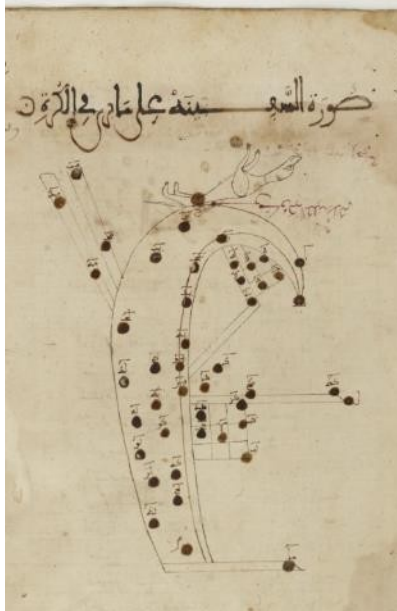
Istanbul, Suleymanie Libr

Ayasofia 2595

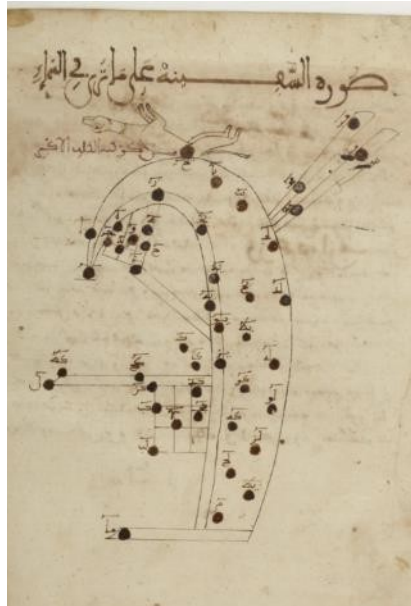
1249-50 AD; Alamut (?) Iran

n.b.— crow's nest; 2 oars; sail blowing backwards (?)

non-Latin Eastern mss (al-Sufi, *Kitāb suwar al-kawākib al-tābita*)



Paris BN  
Arabe 2488  
mid-13<sup>th</sup> C, Ceuta (?) N Africa  
n.b.— dog (Canis maior?) at curved end

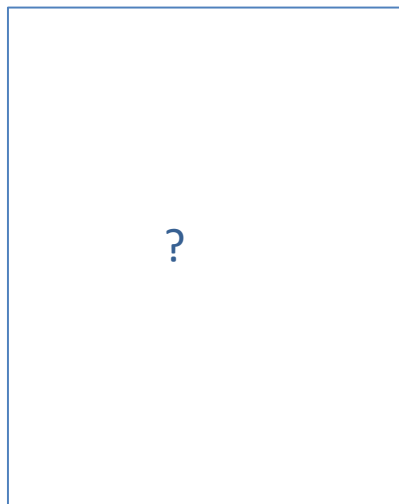


Paris BN  
Arabe 2489  
1266-67 AD; Syria?  
n.b.— full ship; banded masts; chain stays

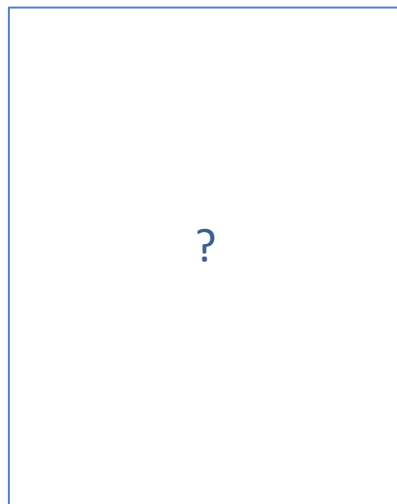


non-Latin Eastern mss (*al-Sufi, Kitāb suwar al-kawākib al-tābīta*)

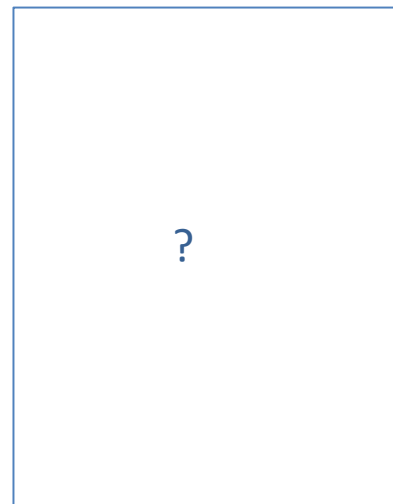
Navis



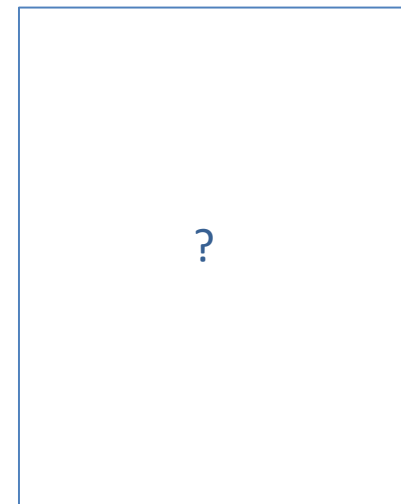
London BL  
Or 5323  
1260-80; Maragha (?), NW Iran



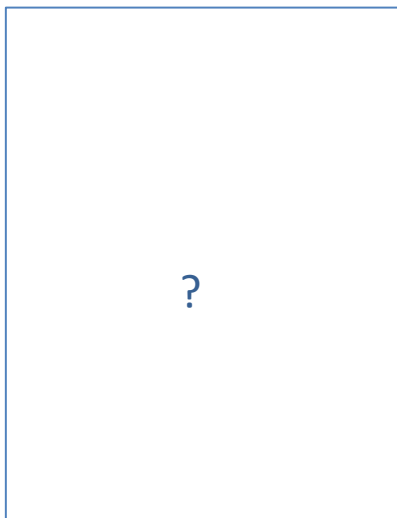
Cairo, National Libr  
Ms Dar al-Kutub miqāt 390  
1300 AD



Oxford, Bodleian Libr  
Pococke 257  
1303/04; Aleppo

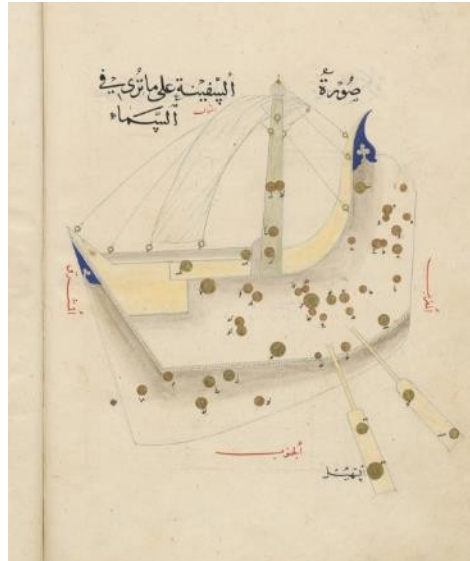


Escorial  
Ms 915  
20 March 1364 AD

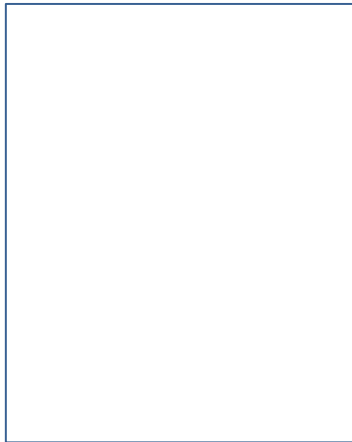


NY, Metropolitan Mus  
Ms Rogers Fund 1913  
c. 1400, Samarkand





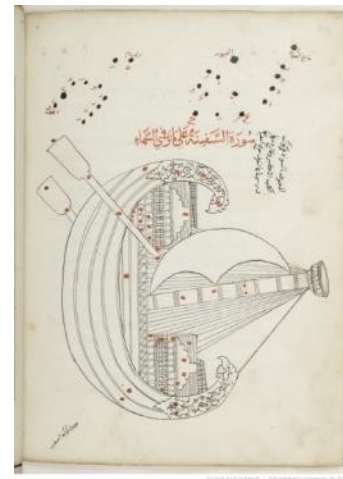
Paris BN  
Ms arabe 5036  
c. 1430-40, Samarkand



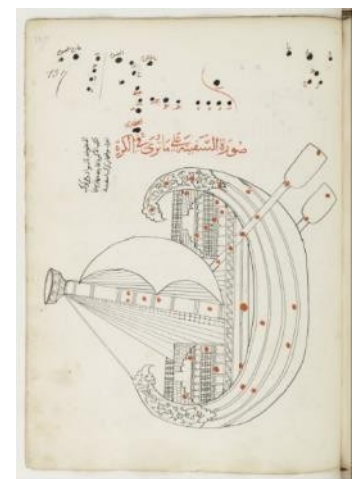
Bologna, Bibl. Univ  
Ms 2953  
8 Oct 1500 AD

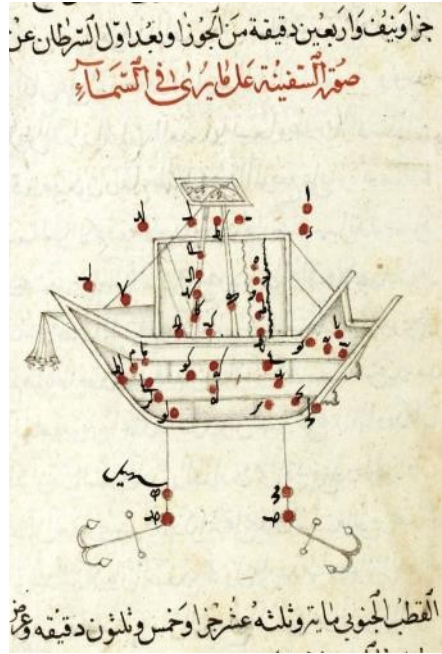
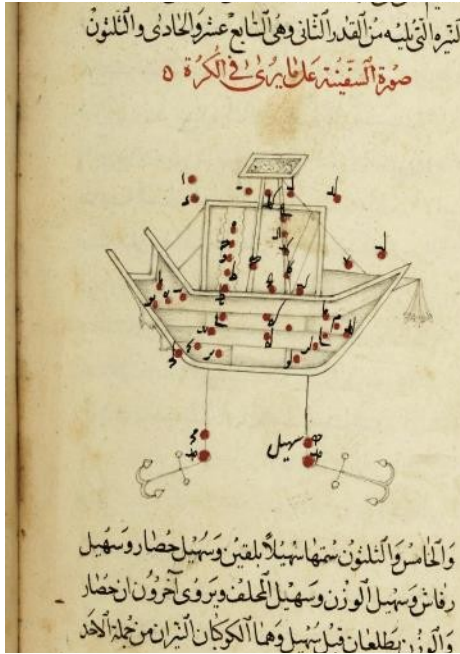


Dublin, Chester Beatty Libr  
Ms Ar 4119  
1504/05 AD



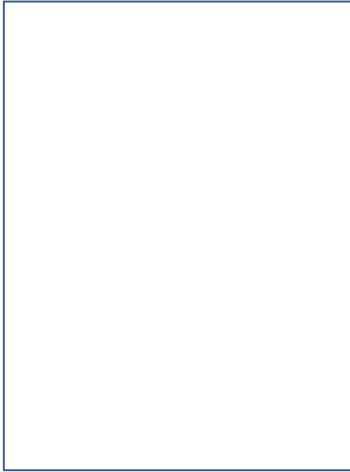
Paris BN  
Arabe 2490  
1516/17 AD





Paris BN  
Arabe 2491  
1770 AD  
n.b.- double anchors, double ram (?)

Paris BN  
Arabe 2492  
18<sup>th</sup> c



Dublin, Chester Beatty Libr  
Ms Ar 4222  
16<sup>th</sup> C; Iran



London BL  
Add ms 7488  
16<sup>th</sup> c



Istanbul, Pertter Pasa Libr  
Ms 375, 16<sup>th</sup> C

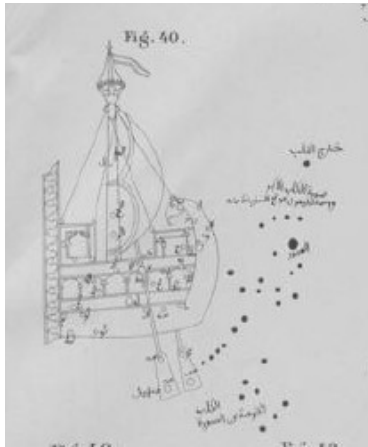


Copenhagen, Kong. Bibl.

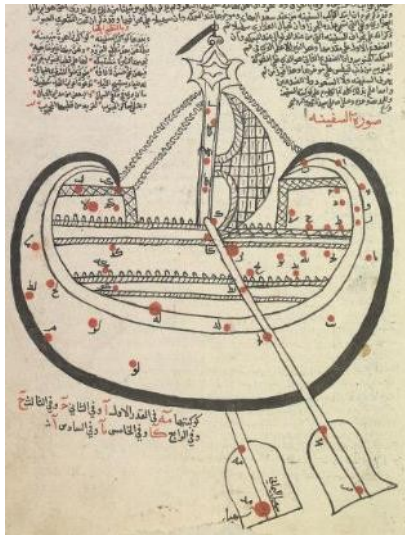
Ms arabe 83

25 May 1602 AD; Medina; copied from copy dated 1013/14 AD believed to be al-Sufi's own copy





St Petersburg, Inst Or Studs  
Ms n.s. 191  
16<sup>th</sup> C; Istanbul ?



Princeton, Univ Libr  
Ms Garrett 2259 Yehuda  
Al-Sufi, dated 3 Jan 1607

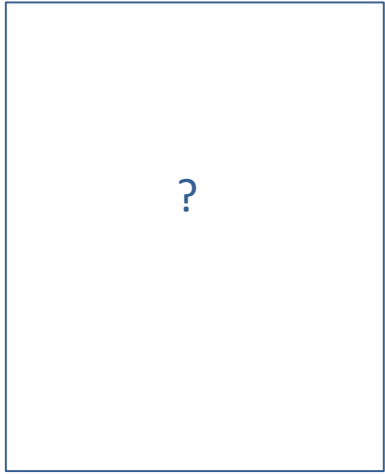


Paris BN  
Arabe 6528  
India, 1643-44

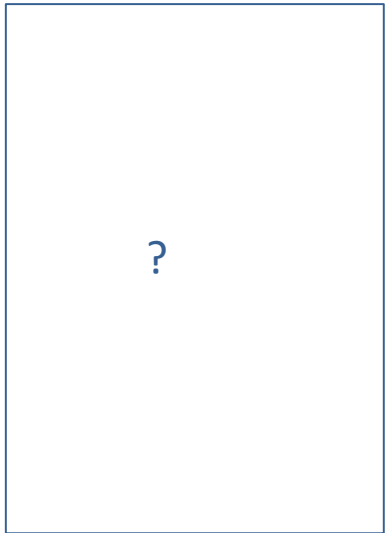


n.b.— bird's head and flag on stern; urns on deck

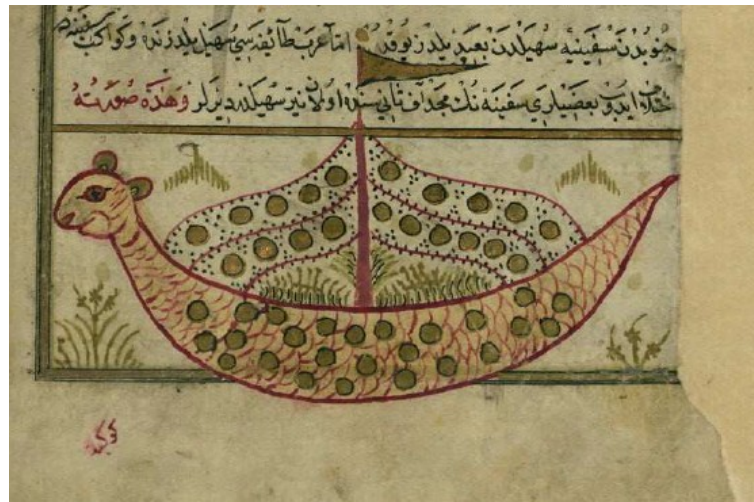
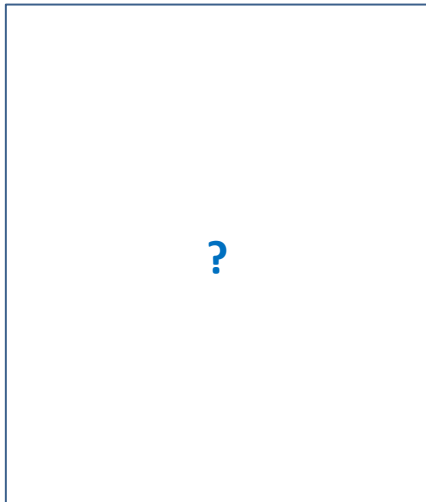
non-Latin Eastern mss – al-Sufi translations, etc.



al-Sufi, at-Tusi transl???



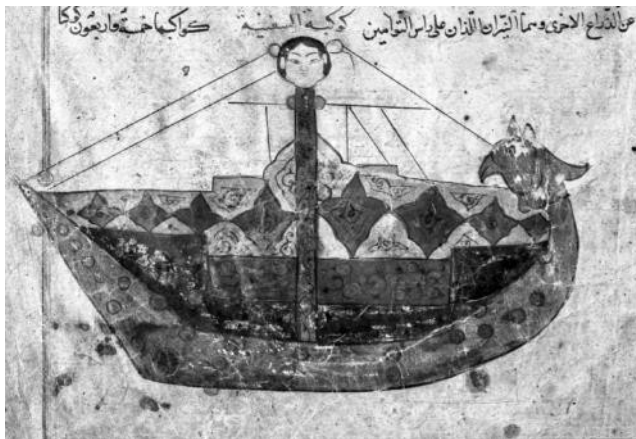
Tehran, Riza 'Abbasi Libr  
Ms M. 570  
Ibn-al-Sufi (son)  
1159-60 AD



St Petersburg, Ms E (?)  
Qazwini

Baltimore, Walters Art Gall  
Ms W 359  
Qazwini  
n.b. – animal head on stern (?)

Paris BN  
Arabe 2178  
1762-63 AD  
Qazwini  
n.b. – bird's head on bow; anchor,  
ladders external tiller



Washington DC, Freer  
Ms 1954 -52 (ex-Sarre)  
Qazwini

Location unknown  
Mughal, 17<sup>th</sup> c  
Qazwini

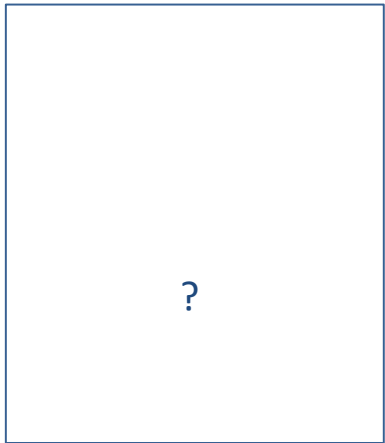
n.b. – bird's head on stern (?); head on mast



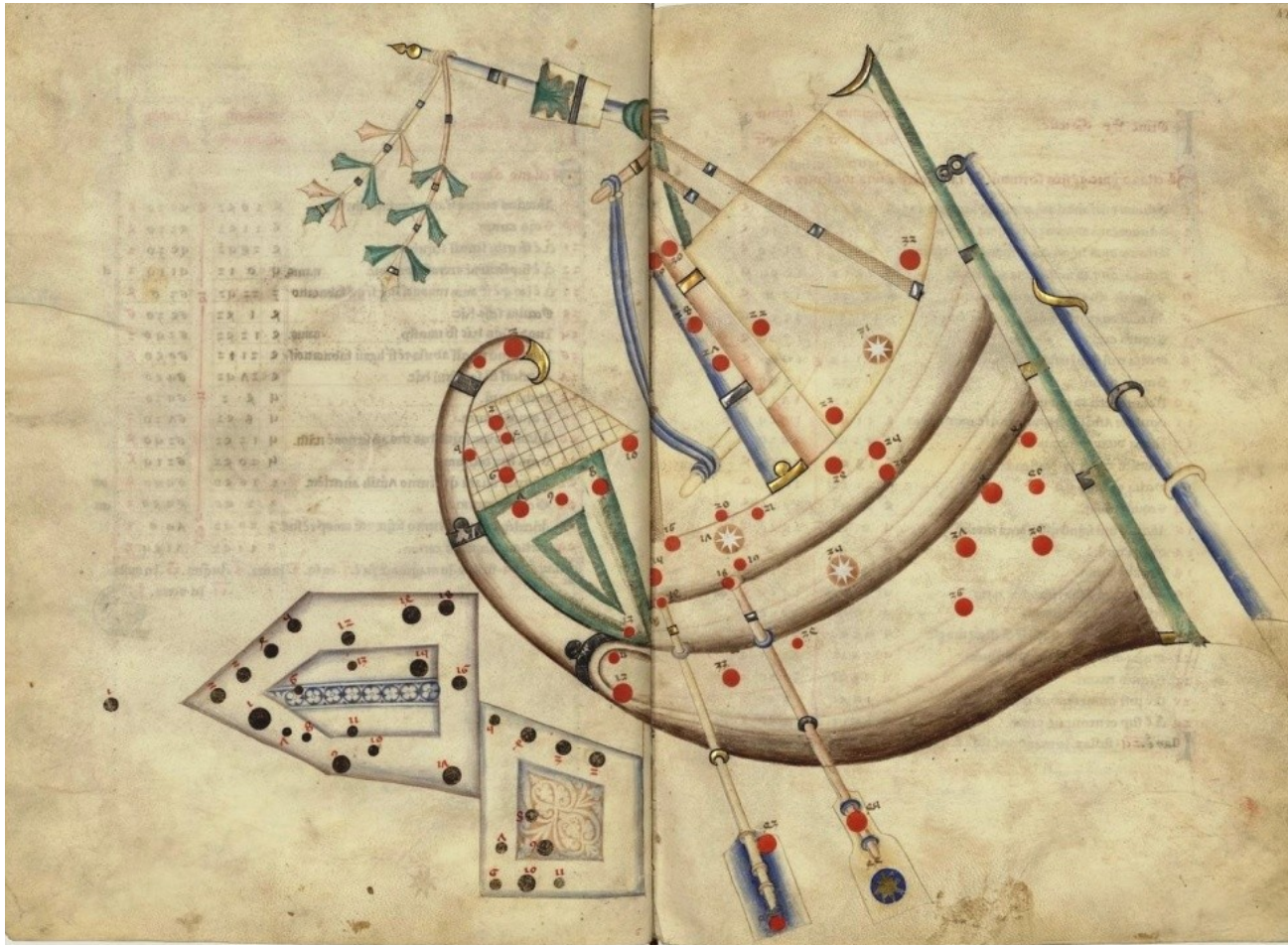


only zodiac signs

Paris BN  
Arabe 2583  
Kitab al-mawālīd, 1300 AD



Oxford, Bodleian Libr  
Or. 133  
Kitab al-bulhan comp.  
Late 14<sup>th</sup> c



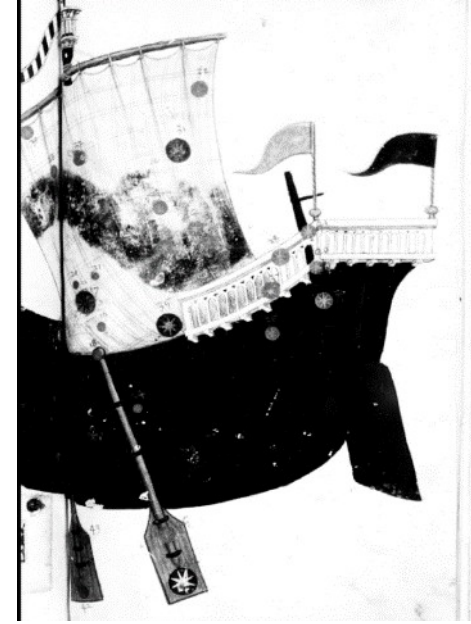
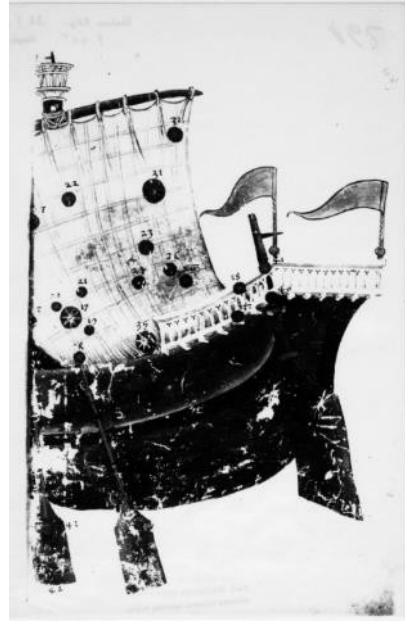
Paris, Bibl Arsenalé

Ms 1036

n.b. – bi-folio; curved bow



## Sufi latinus - II



Prague, Strahov DA. II. 33

n.b. – bi-folio; full ship with hammerhead bow; galleried poop deck

Berlin, Staatsbibl, KK

Ms 78 D 12

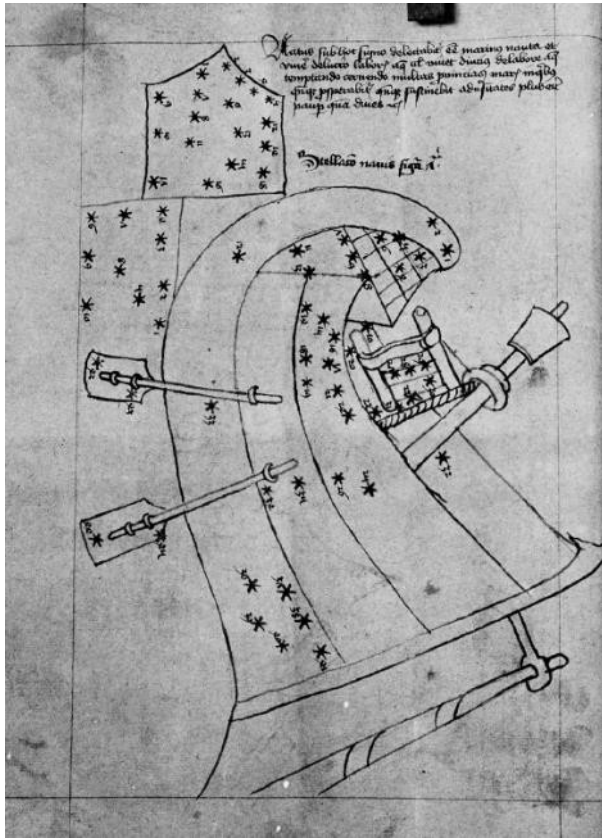
n.b. – bi-folio; hammerhead bow; galleried stern

image missing from ms

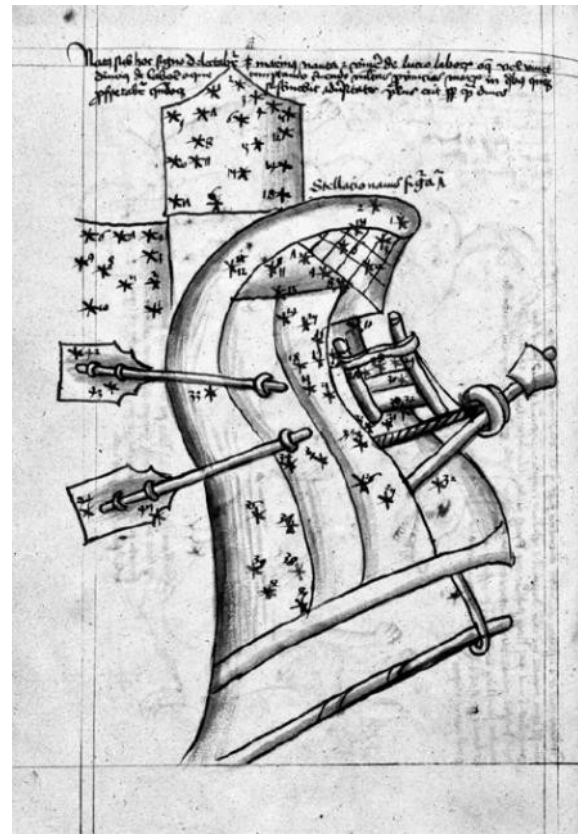
Munich, Staatsbibl  
CIm 826



Gotha, Forshungsbibl  
Membr II 141  
n.b. – full ship, hammerhead bow; galleried stern



Catania, Bibl Univ  
 Ms Univ Ar, 387  
 n.b. – half-ship, curved bow



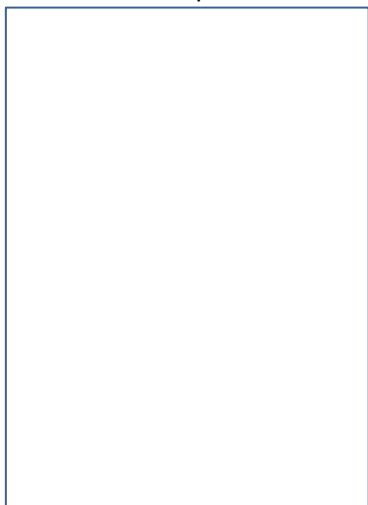
Vienna, ONB  
 Cod 5318  
 n.b. – half-ship, curved bow





El Escorial  
more  
Ms h I 15 – Lapidario

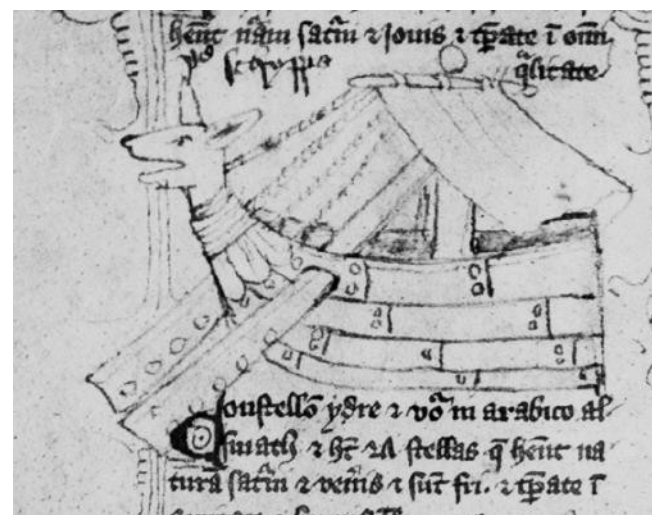
plus 6



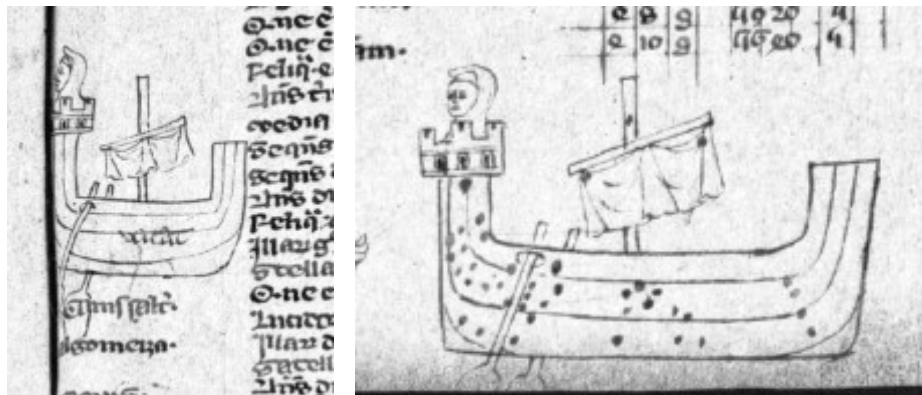
Vatican BAV  
Reg lat 1283a



Vatican BAV  
Vat lat 8174



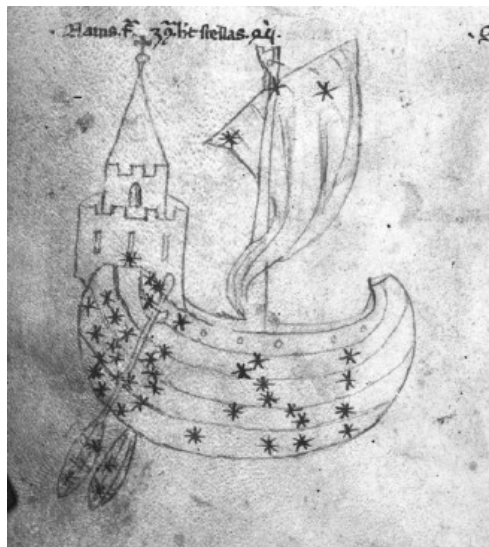
Los Angeles, Getty Mus  
Ms Ludwig XII, 7 – n.b.– dog's head at stern; nails in planks



Oxford, Bodleian Libr

Rawl C 117

n.b. – human head on poop



Vatican, BAV

Urb lat 1399

n.b. – castle on stern; twisted sail



Oxford, Bodleian

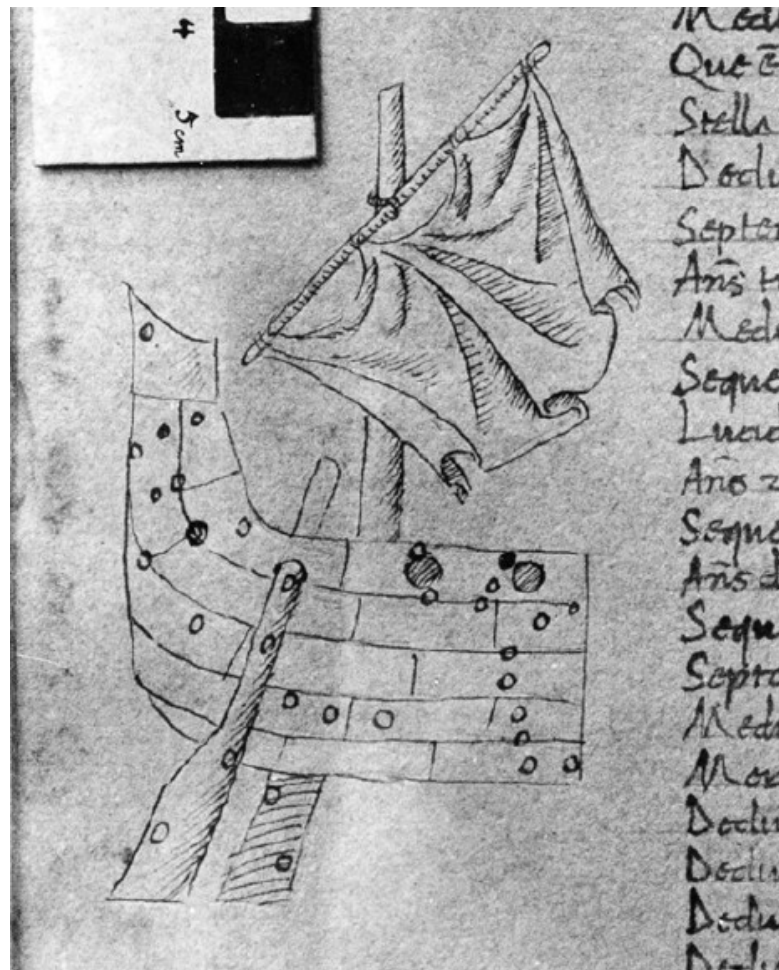
Can class misc 554

n.b. – castle on stern; twisted sail



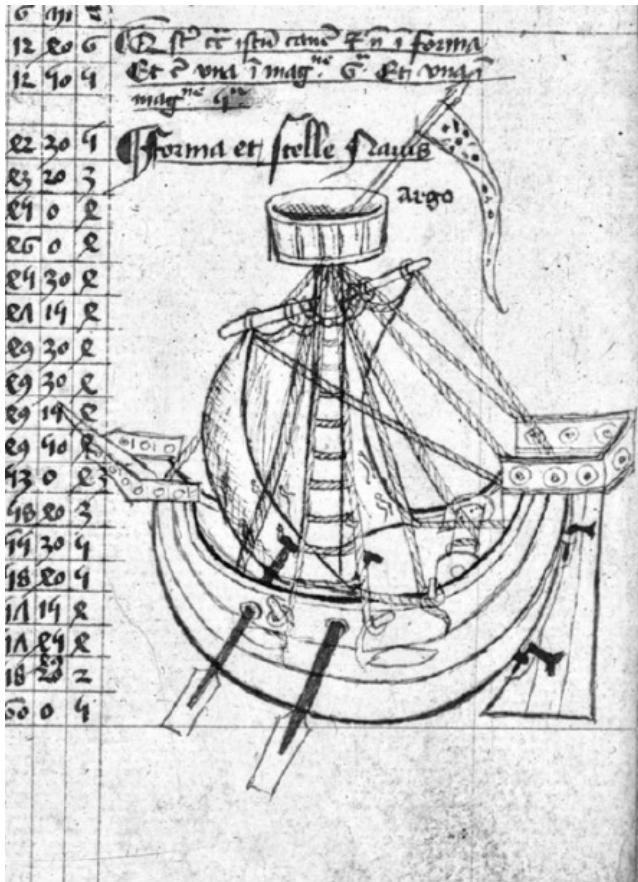


Bergamo, Bibl A Mai  
Ms Sigma II 2  
n.b. – half ship



Vatican, BAV  
Vat lat 3099  
n.b. – half ship

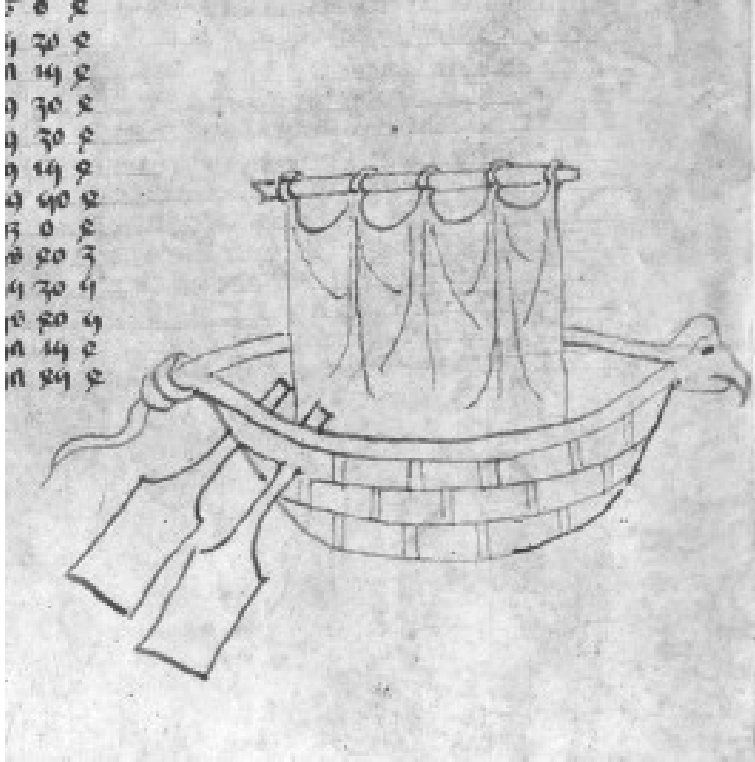




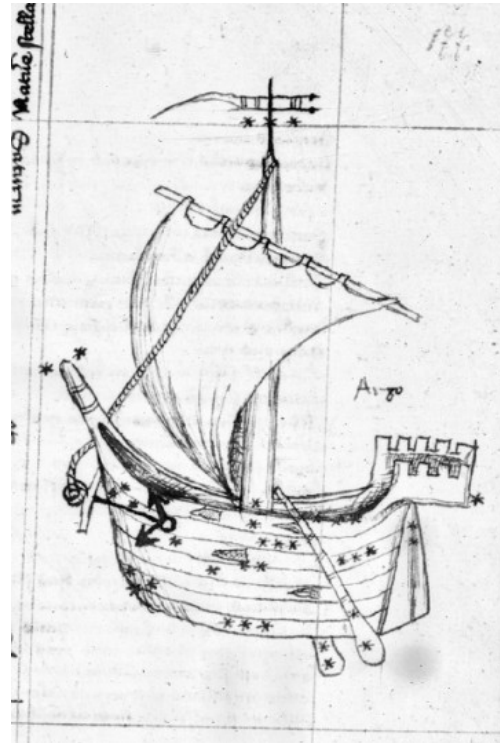
Brussels, Bib Roy  
Ms 10117-26



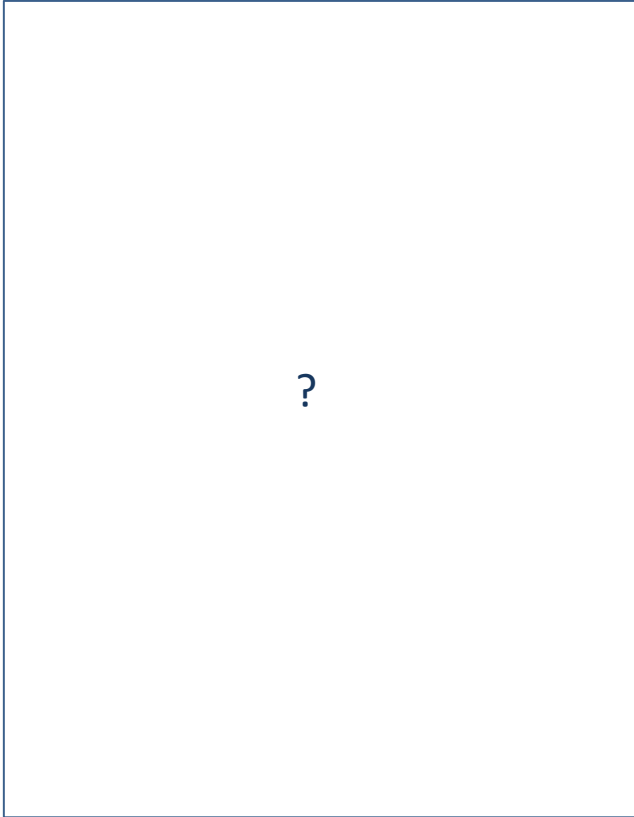
Vatican BAV  
Pal lat 1368



Vatican BAV  
Pal lat 1377  
n.b. – bird's head on bow

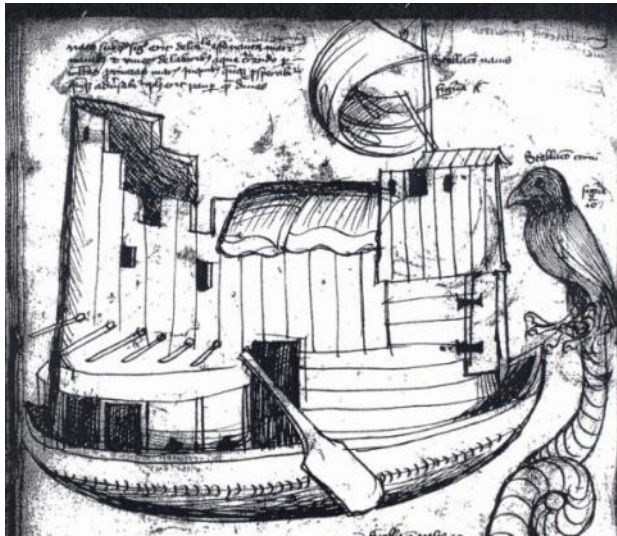


Torun  
Ms 35

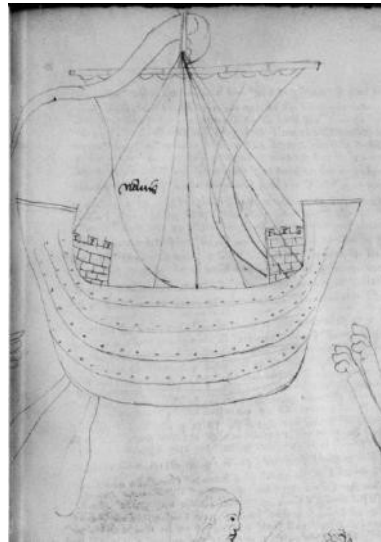


Augsburg, Univ.-bibl.  
Cod II. 1 2o 110

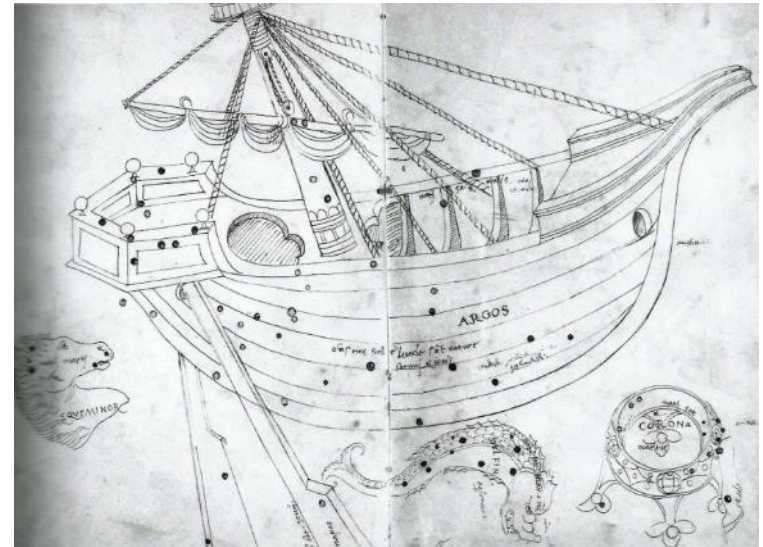




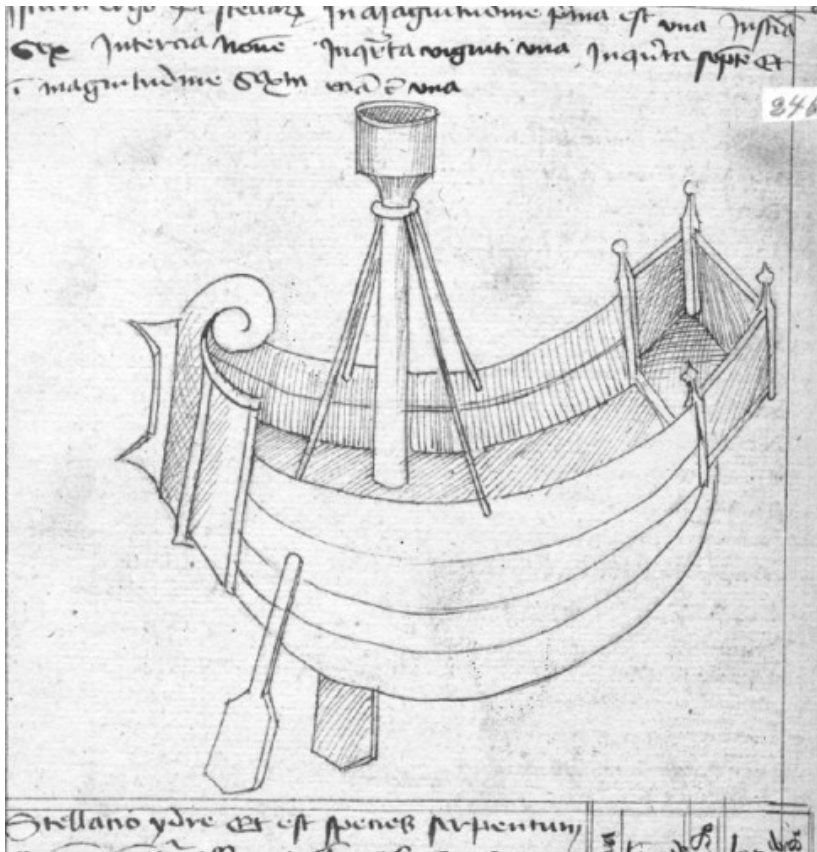
Cambridge MA  
Houghton, Typ 43  
n.b. – proximity of Corvus's head to 'stern' (?)



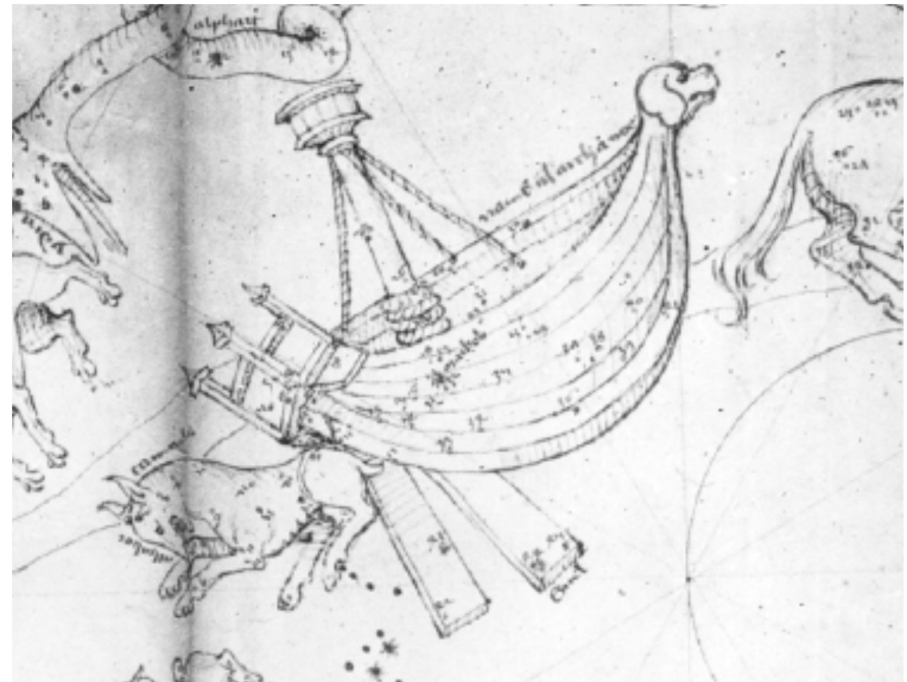
Basle, Univ-Bib  
Ms F. II. 33



Florence, BNC,  
Ms Angeli 1148 n.b. – hole in bow



Vienna ONB  
Cod 5415  
n.b. – full ship with forecastle



Vienna 5415  
southern hemisphere  
n.b. – full ship with dog's head on bow; galleried stern; second 'Lupus' at stern



Philadelphia, U Penn  
Ms LJS 57



southern hemisphere



Vienna, ONB  
Hebrew 132





?



missing from manuscript



missing from manuscript

Padua, Univ . Bibl.  
Cod 896

Vatican BAV  
Vat lat 1650

Vatican BAV  
Urb lat 355



Cusanus globe  
© P. Hadrava





Miscellaneous related images



York City Art Gallery – Bernardino Fungai, Martyrdom of S Clement



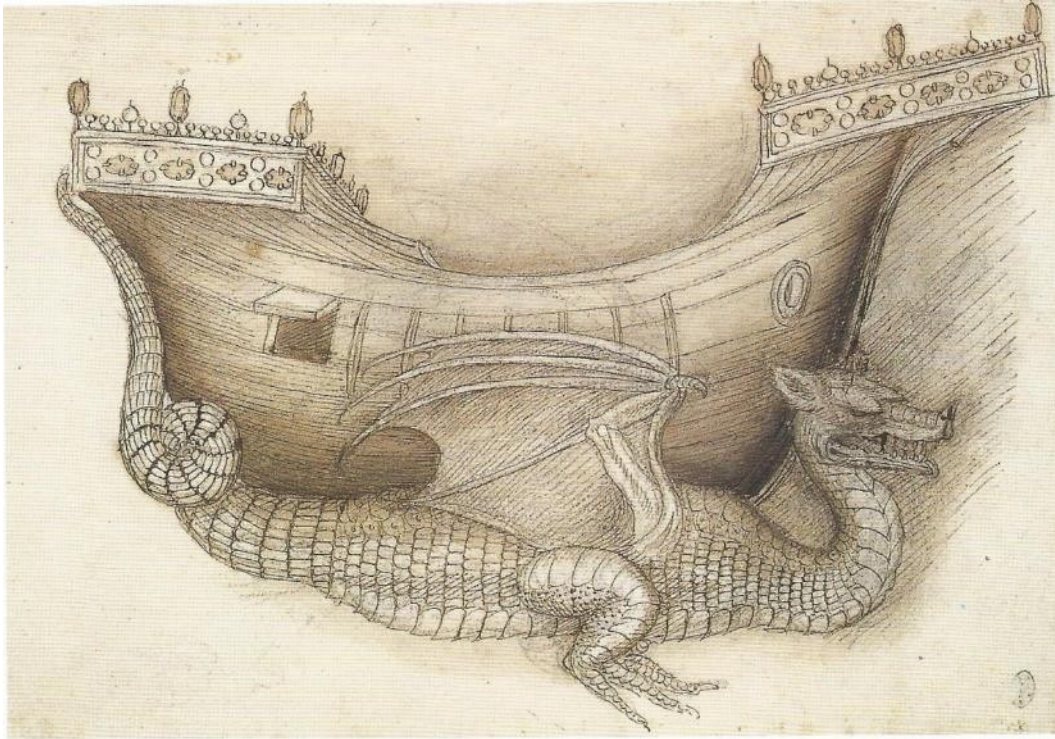
Venice, San Marco



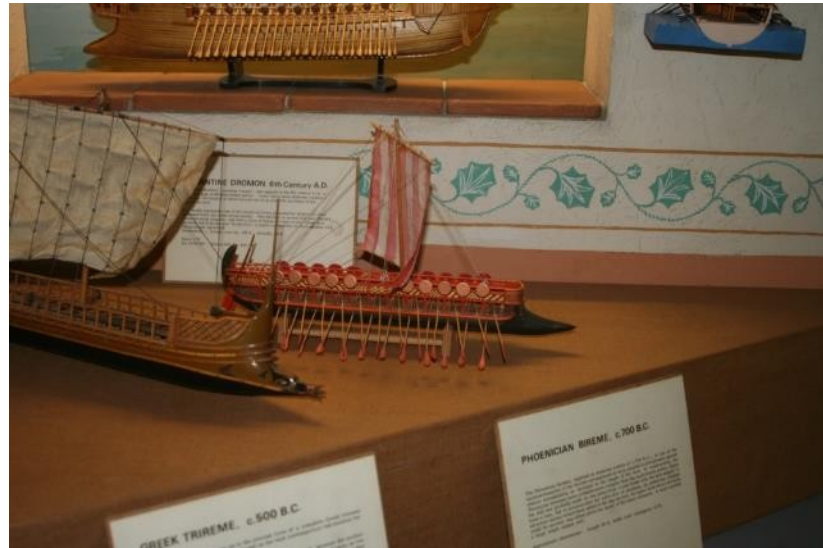
Reims Cathedral, Nef of St Ursula, late 15<sup>th</sup> C







Paris, Mus du Louvre – Pisanello, Design for a salt cellar, c. 1448-49



**ROMAN SHIP, 2nd century A.D.**

This model of a Roman sailing ship of the 2nd century A. D., is based on evidence from contemporary bas-reliefs. Ships of this type which brought corn to Rome from the coast of Egypt and the Levant, differed in construction from the men-of-war of the period, in that they were heavily built vessels of considerable cargo capacity, propelled entirely by sails.

The hull was small built according to what had become the traditional Mediterranean method of ship building. The planking, which was erected before the frames were added, was held together by mortice and tenon joints.

There was one central mast, which carried a large square sail with frequently a topmast above it, and a heavy spar raking well forward over the bow, called the artemon, on which was set a small headsail. This sail was of considerable importance in enabling the vessel to keep a steady course.

Approximate dimensions:- Length overall 90 ft. capacity 250 tons.

Scale 1 : 60

Inv. No. 1943-194. Photo. 8002

**GREEK TRIREME, c.500 B.C.**

There is little direct evidence as to the precise form of a complete Greek trireme and this model has therefore been based on the best contemporary information for each part of the vessel.

The trireme, probably developed in the 6th century B.C. because the earlier biremes had proved too light and fragile in war, carried three banks of oars, on two levels, on each side. Two oarsmen would probably sit side by side on the upper tier and one on the lower tier. The total number of oars was about 170. Soldiers could be carried on the raised centre deck.

By this date significant changes had taken place in the art of shipbuilding. Shell construction, in which the hull of the ship was formed of planks and then strengthened by the insertion of frames, had become the general practice. The keel, all that remained of the old dug out hull, formed the backbone of the vessel and the strength behind the ram.

The mast, which carried a single square sail, could be lowered and rested on the yoke during action.

Approximate dimensions:- Length 130 ft. width over outriggers 19 ft.

Scale 1 : 60

Inv. No. 1943-198. Photo. 294-297/38

**PHOENICIAN BIREME, c.700 B.C.**

The Phoenician bireme, depicted on Assyrian reliefs of c.700 B.C., is one of the earliest examples of the two tier arrangement of oars, adopted to give greater speeds without necessitating an increase in the length of the boat. In construction, the Phoenician biremes were probably more complex than the early Greek galley. Again the hull was probably made in one piece from a tree trunk with the bow shaped to form a ram, but to accommodate the extra tier of oarsmen, an additional planked structure seems to have been added to the dug out hull. An upper deck where warriors could be carried, was fitted above the heads of the inner oarsmen. A mast carried a large single square sail.

Approximate dimensions:- Length 84 ft. width over outriggers 13 ft.

Scale 1 : 72

Inv. No. 1964-289. Photo. 1018/70

**GREEK GALLEY, c.800 B.C.**

This model, based on Dorian vase decorations of c. 800 B.C., represents an early type of Greek warship. These warships seem to have been light vessels with shallow draught. In construction they were simple, the hull being made in one piece in the manner of a large dug out, with the bow shaped to form a sharp ram. Twelve rowers on each side of the vessel, pulled oars pivoted on outriggers formed from poles, while a small deck forward provided a platform for warriors.

Approximate dimensions of the hull:- Length 65 ft. width 4 ft.

Scale 1 : 72

Inv. No. 1964-290. Photo. 1019/70

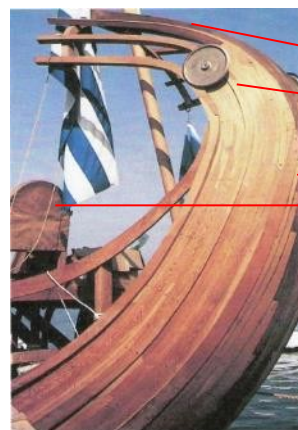
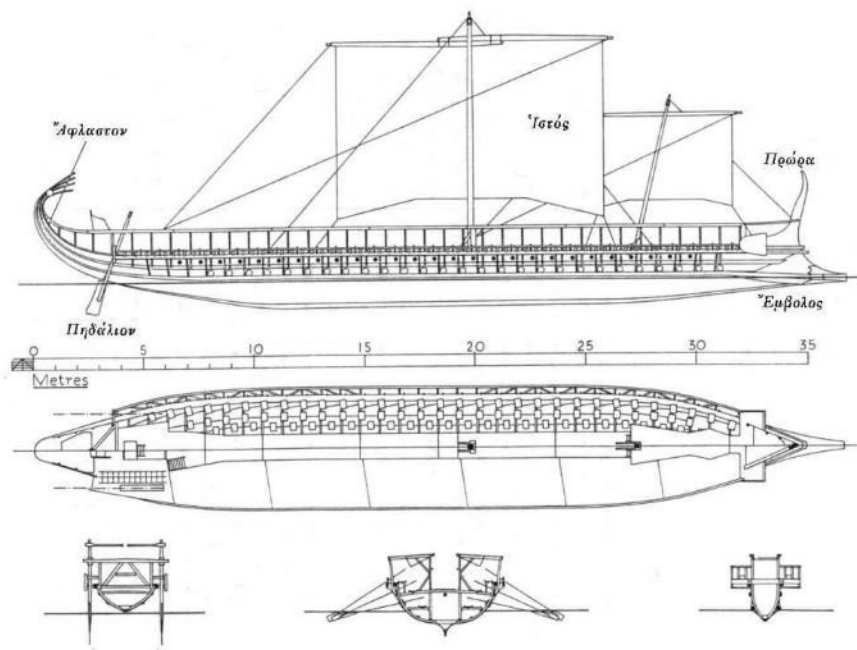
Models of Greek and Roman galleys must be regarded as conjectural and controversy still continues as to the precise positions of the oarsmen.





## Greek Trireme, c. 500 BC

- keel, plank and frame construction
- oar – driven, fastened by thongs; outrigger structure called *parexeiresia*
- central mast with large square sail, that can be lowered
- spur or ram at front, with eye (*oculus*) decoration
- raised platform at rear with chair for triarch
- *aphlaston* at rear, with a shield at the base
- steering oar/s (*pedalia*) at rear
- open deck work at the sides (*cancelli*)



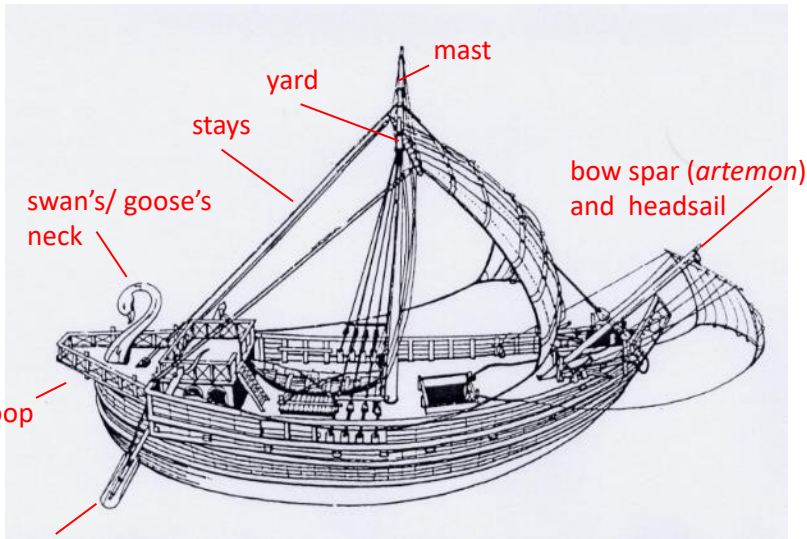
- *aphlaston*
- decorative bronze disc
- termination of plank runs
- triarch's seat

raised steering oars

*parexeiresia*





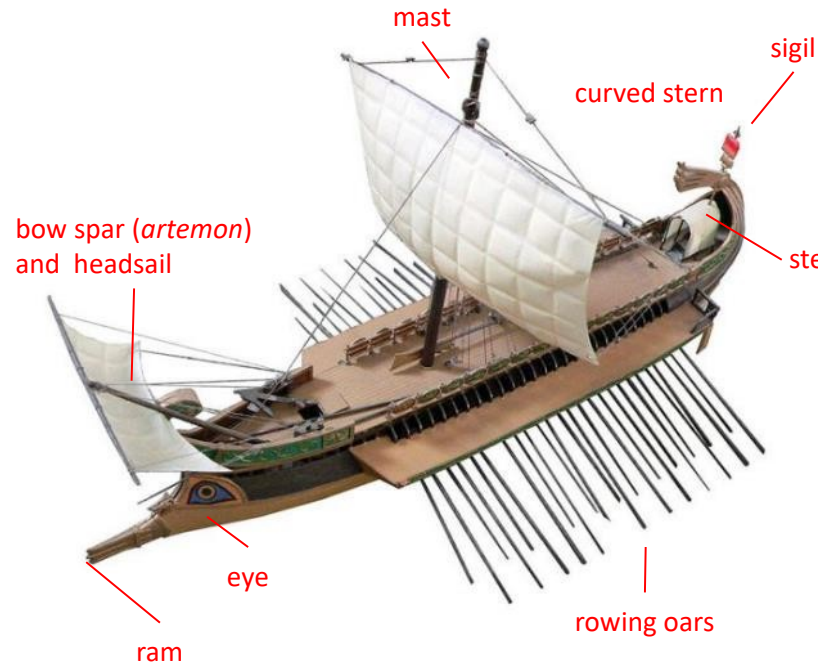


**Roman Merchant ship, c. 300 AD**

- wind-driven
- steering oars at back
- central mast with large square sail
- two wooden figures
  - bow = insignia relating to the name of the boat
  - stern = tutela god who protected the boat

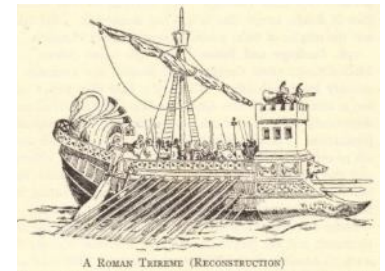


steering oar/s



**Roman War ship (bireme) , c. 300 AD**

- oar-driven (here = two banks)
  - central mast with large square sail
  - two wooden figures
    - bow = insignia relating to the name of the boat; *parasemum*
    - stern = *tutela* god who protected the boat
- ram or *rostra* on the bow





Byzantine Dromon, 8th C AD



Medieval cog – 10th C onwards

- single-masted and square-rigged
- flat bottom at centre; clinker outer planking at the sides of the hull
- straight stern and bow post
- stern-mounted rudder



Caravel – 15<sup>th</sup> century onwards

- Portuguese
- square or lanteen rigged



Carrack – 15<sup>th</sup> century onwards

- S Europe
- 6 sails