

**SHIPBUILDING KNOWLEDGE AND HERITAGE**

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**Ruinas de un barco del siglo XVII. Côtes d'Armour**

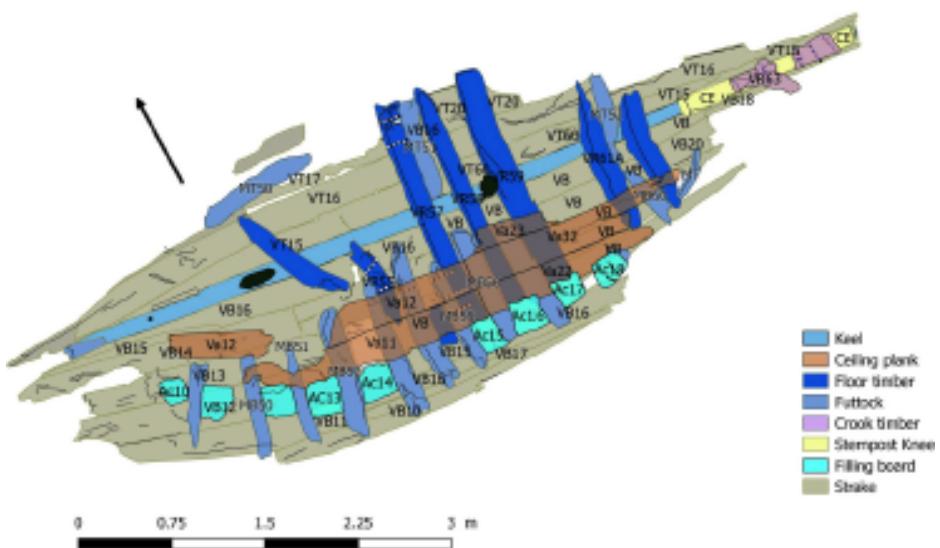


Source: Images Explorations — F. Osada



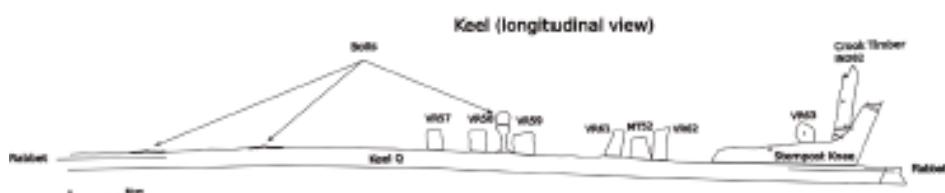
Orthophotography of the wreck

Source: A. Guesdon



Identification of the architectural elements

Source: Drassm



Keel (top view)



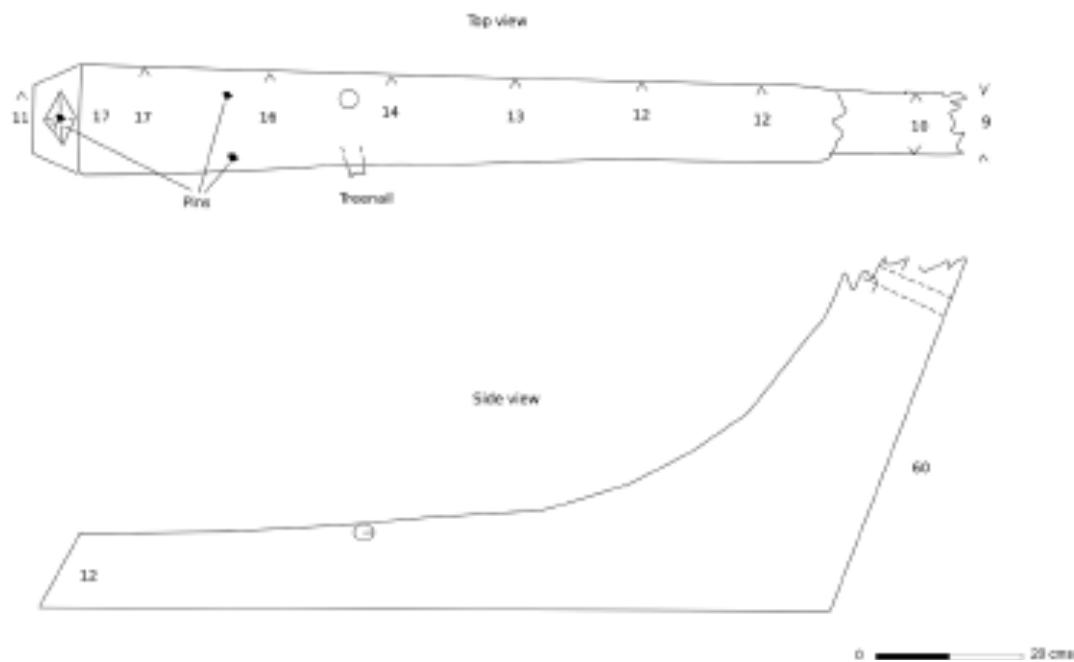
The keel

Source: E. Rieth and E. Poletto

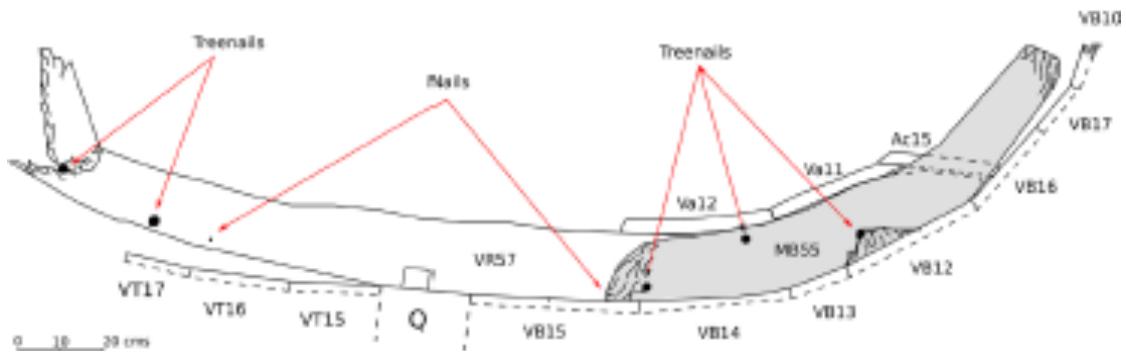


Three traces of assembly by iron pins/bolts in the keel.

Source: Images Explorations — F. Osada



The sternpost knee Source: S. Bertoliatti



The master frame VR57 (floor timber)/VR55 (futtock)

Source: A. Poletto



The tetrahedral pilot hole in the front end of the sternpost knee.

Source: Images Explorations — F. Osada



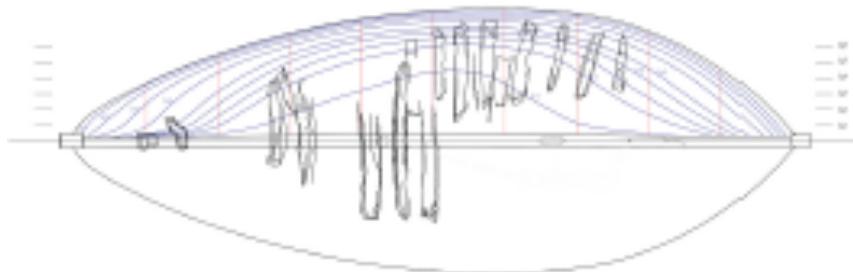
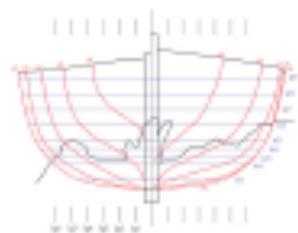
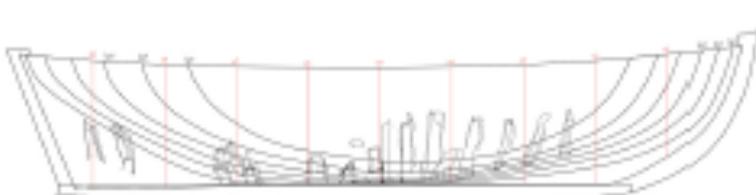
Planimetric view of the various wood species in relation with the architectural remains

Source: Drassm



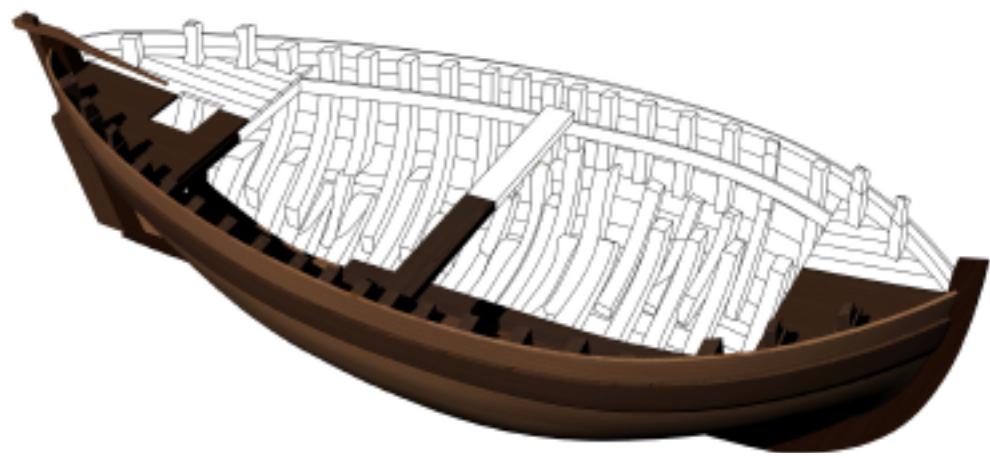
The filling boards (left to right) AC15, C14, AC13, AC12

Source: Images Explorations — F. Osada



Reconstruction of the lines.

Source: S. Bertoliatti

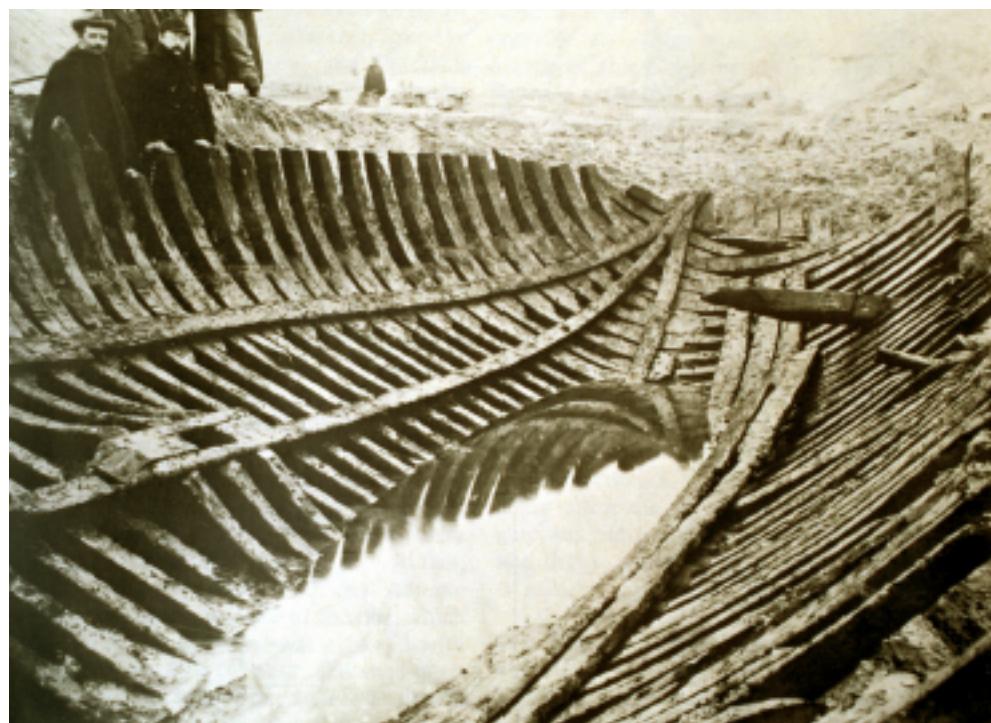


3D reconstruction of the architectural structure.  
Source: P. Poveda, AMU, CCJ, CNRS



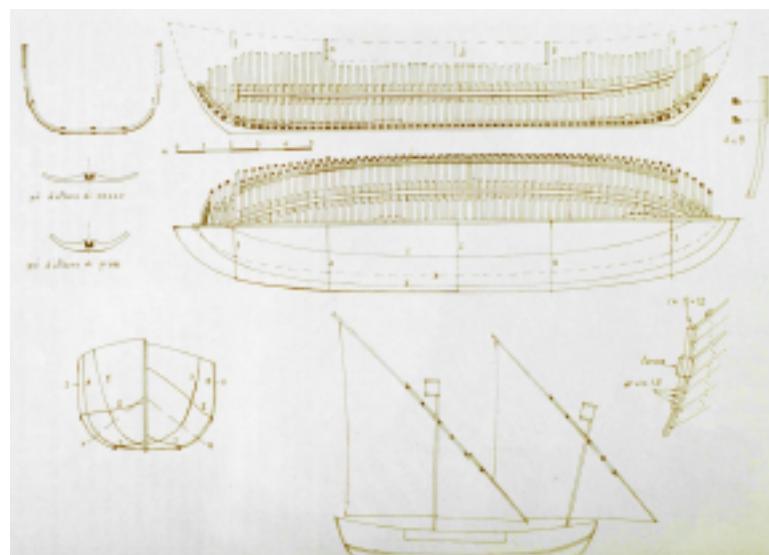
3D reconstruction of the coaster Erquy-les-Hôpitaux  
Source: P. Poveda, AMU, CCJ, CNRS

### En el estuario del Po



View of the hull bottom of the Contarina 1 shipwreck in the River Po delta in 1898

Source: BONINO, 1978: 13, Fig. 3



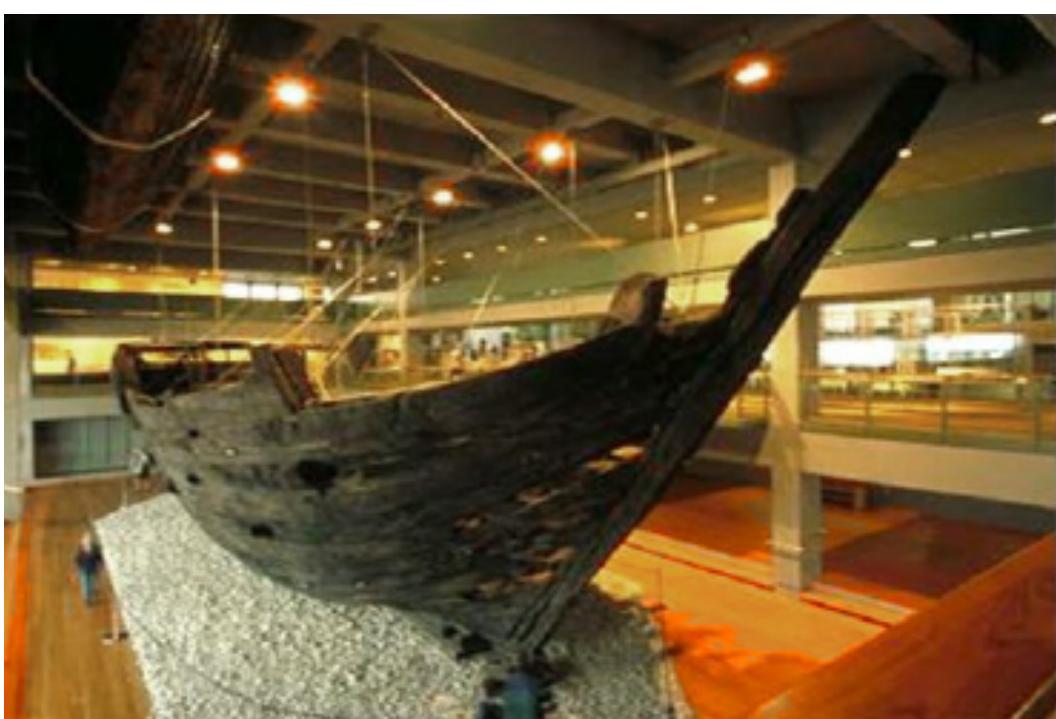
Drawings and graphic reconstruction of the Contarina 1

Source: BONINO, 1978: 14, Fig. 4

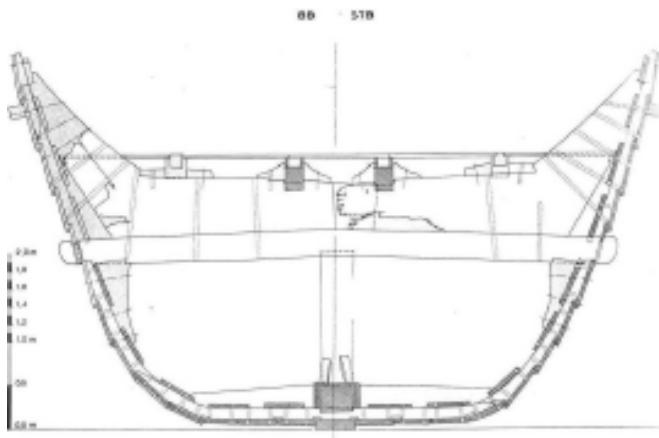
## Otros restos



Cog sculpted on the southern tower of the Oporto Cathedral  
Source: <<http://cidadesurpreendente.blogspot.pt/2010/12/nave-esculpida-numa-torre-da-se-do.html>>  
[Access on 07/08/2016]



«Bremen cog» displayed in the Deutsches Schifffahrtsmuseum of Bremerhaven  
Source: <<http://bertan.gipuzkoakultura.net/ac/accesibilidad.php>>. [Access on 16/08/2016]



Central section of the «Bremen cog»

Source: CRUMLIN-PEDERSEN, 2000: 232, Fig. 3 ff. LAHN, 1992



Central sections of the cogs from Kollerup, Kolding and Vejby

Source: CRUMLIN-PEDERSEN, 2000: 234, Fig. 5 ff. CRUMLIN-PEDERSEN, 1979



Low relief band of the baptistery in the Winchester Cathedral

Source: MCGRAIL, 1998: 118, Fig. 8.18



Lübeck town seal (1224)

Source: CRUMLIN-PEDERSEN, 2000: 233 («after Ewe, 1972»)



Danzig town seal (1299)

Source: ELLMERS, 1994: 41



Stralsund town seal (1329)

Source: ELLMERS, 1994: 29



Representation of a hulk on the left side of the memorial stone at Bica do Andaluz in Lisbon; part of the inscription appears to the right

Source: <<https://www.pinterest.pt/pin/46302702402862754>>. [Access on 18/08/2016]



Bica do Andaluz memorial stone

Source: <<http://lisboahojeontem.blogspot.pt/2012/11/chafariz-de-arroios.html>>. [Access on 18/08/2016]



Kiel town seal (1365)

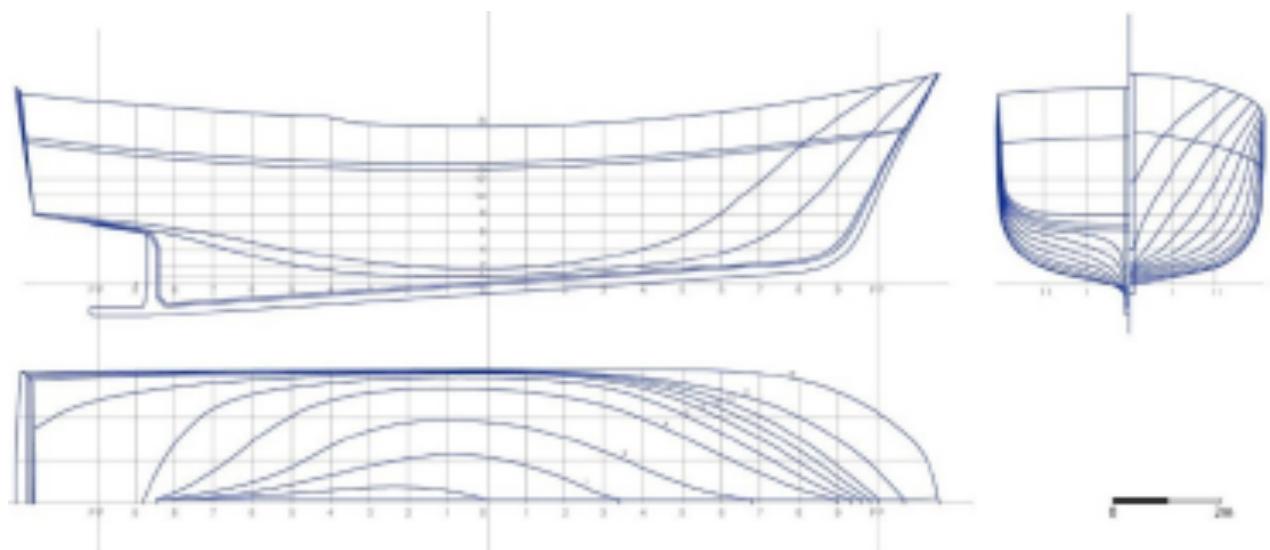
Source: ELLMERS, 1994: 38



Representation of a cog on the memorial stone at the Chafariz de Arroios, Lisbon

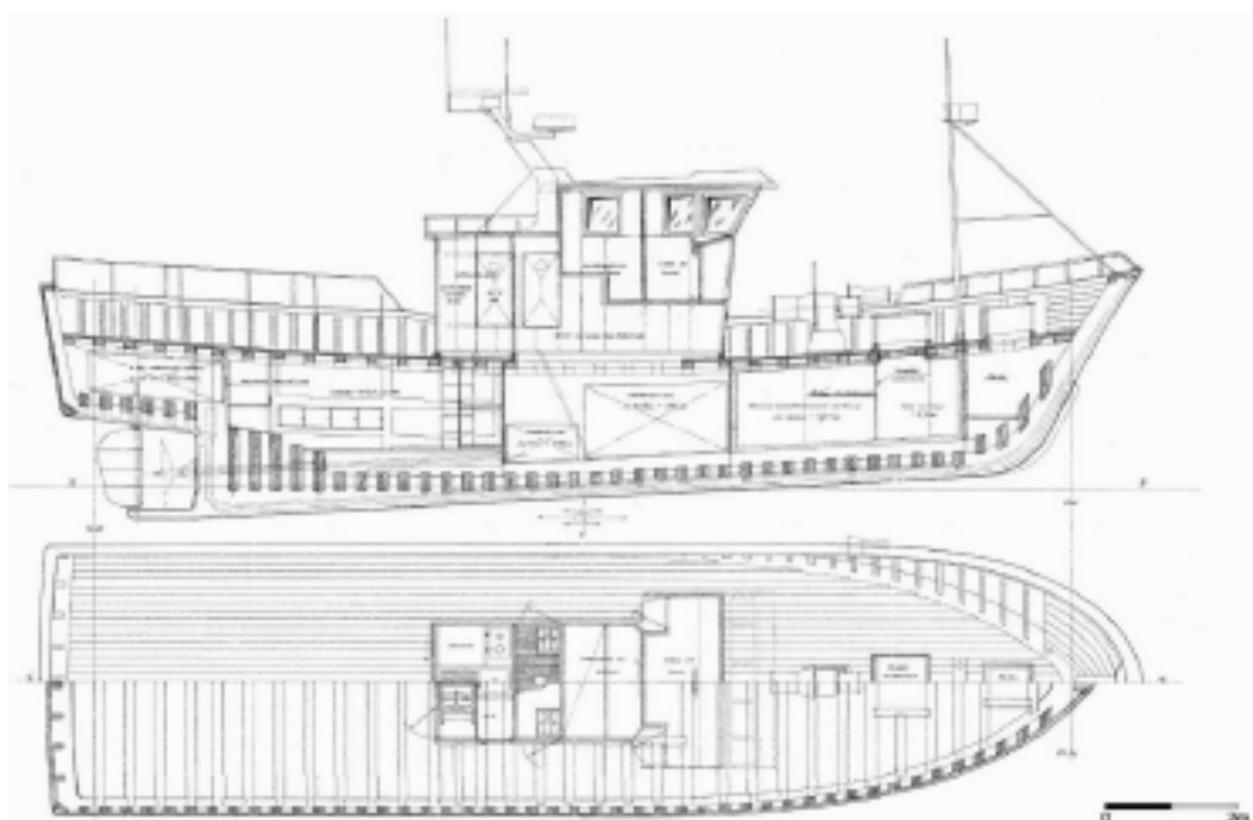
Source: Francisco Alves

### Otro trabajo



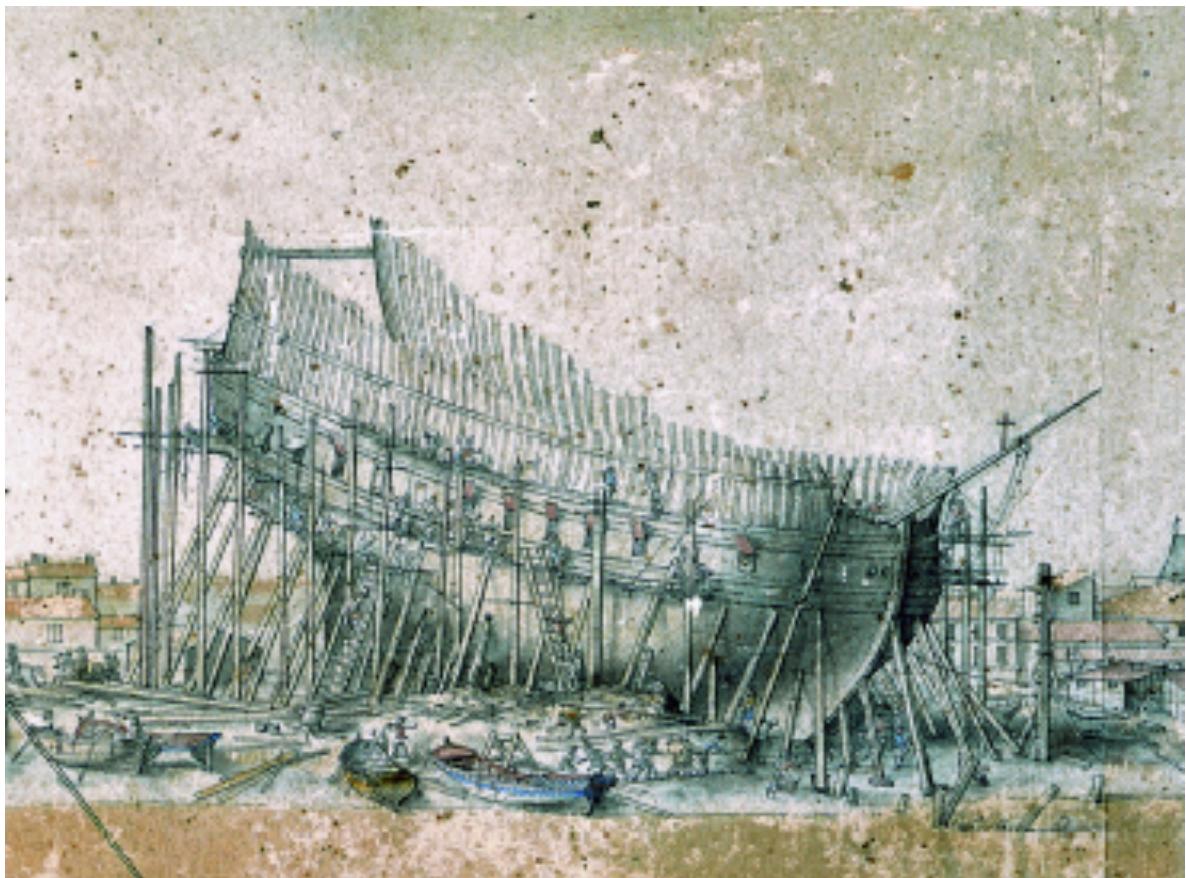
Geometrical plane of the hull planking exterior

Source: António Carmo



Cut-to-length design.

Source: António Carmo



Detail of a vessel under construction. A view of the shipyard of Rochefort, showing both vessels and galleys, Nicolas Berquin, 1690. Drawing in pen and black ink, brown and grey wash, watercolor highlights, marouflaged paper on canvas.

Source: Musée d'Art et d'Histoire, Rochefort

THE PROJECT OF BUILDING A NEW TEA CLIPPER — THE CUTTY SARK 2  
VLADIMIR MARTUS



Cutty Sark 2  
Source: courtesy of Cutty Sark 2 Sail Foundation



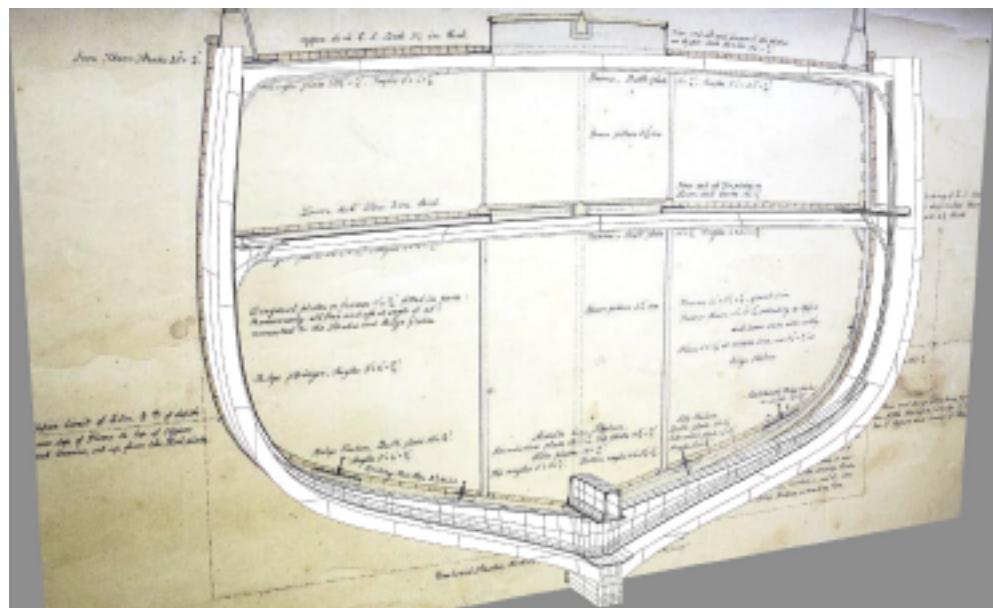
Replica ship Shtandart  
Source: courtesy of Swedish Coast Guard



Cutty Sark (1869)  
Source: from collection of Cutty Sark 2 Sail Foundation



Vila do Conde  
Source: collection of Museu da Construção Naval, Vila do Conde



Centerframe of Cutty Sark 2  
Source: Cutty Sark 2 Sail Foundation