

Early Modern Iberian Ships Tentative Glossary



Part 2 - Timber

Filipe Castro, Marijo Gauthier-Bérubé,
Massimo Capulli, Maria João Santos,
Ricardo Borrero

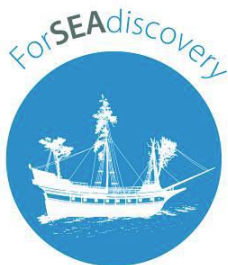


J. Richard Steffy Ship Reconstruction Laboratory

ShipLAB

TEXAS A&M
UNIVERSITY

08 June 2017



Marie Curie EU Grant
PITN-2013 GA607545



EU Horizon 2020
No. 727153



GROPLAN
Industrial Research Project
funded by ANR

Timbers are presented in the order in which they appear in a contract from Livro náutico, dated to the late 16th century, following Alex Halett's dissertation (Nautical Archaeology Program, Texas A&M University, 2007).

Country abbreviations:

PT – Portugal

SP – Spain

CT – Catalonia

FR – France

IT – Italy

UK – United Kingdom

NL – Netherlands

Contents

Keel
Posts
Scarves
Stern panels
Frames
Midship and tail frames
Pre-designed frames
Stern frames
Bow frames
Keelson
Maststep
Bottom stringers
Stringers and breasthooks
Ceiling
Orlop structure
Clamps
Deck beams
Carlings
Deck knees
Stanchions
Mast partners
Waterways
Spirketing

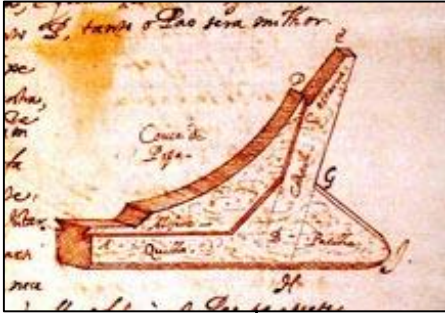
Contents

Reinforcing knees
Other reinforcements
Wales
Channels
Second futtocks
Second deck
Foremast step
Hatches
Third futtocks
Third deck
Hawseholes
Mizzen maststep
Ship's boat cradle
Forecastle
Stern castle

Keel and Posts

In red: *Couce de Popa* and *Couce de Proa*

Lavanha, c. 1600



Scarves

Stem post knee

Stern knee



Lavanha, c. 1600

PT – Quilha

SP – Quilla

CT – Carena

FR – Quille

IT – Chiglia, colomba (Venice), caenha, carina

UK – Keel

NL – Kiel

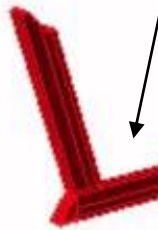
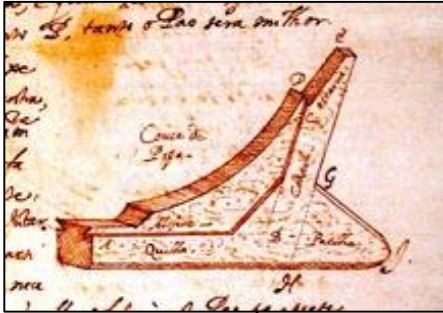
3D Model: Alex Hazlett

Keel and Posts

In red: *Couce de Popa* and *Couce de Proa*

- PT – Escarvas
- SP – Escarpes
- CT –
- FR – Écartis
- IT –
- UK – Scarves
- NL –

Lavanha, c. 1600



3D Model: Alex Hazlett



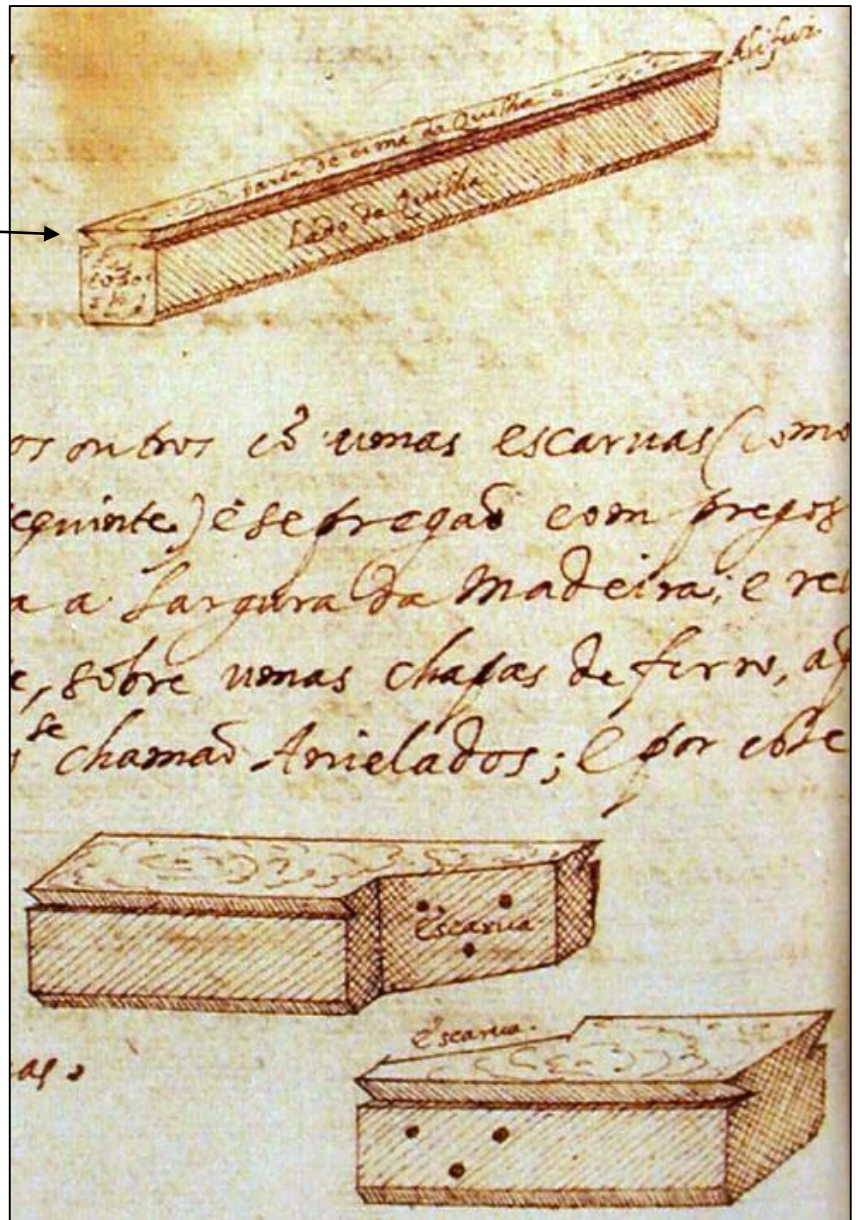
Lavanha, c. 1600

- PT – Couce de popa
- SP –
- CT –
- FR – Courbe d'étambot
- IT –
- UK – Stern knee
- NL –

- PT – Couce de proa
- SP –
- CT –
- FR – Courbe d'étrave
- IT –
- UK – Stem knee
- NL –

Keel and Posts

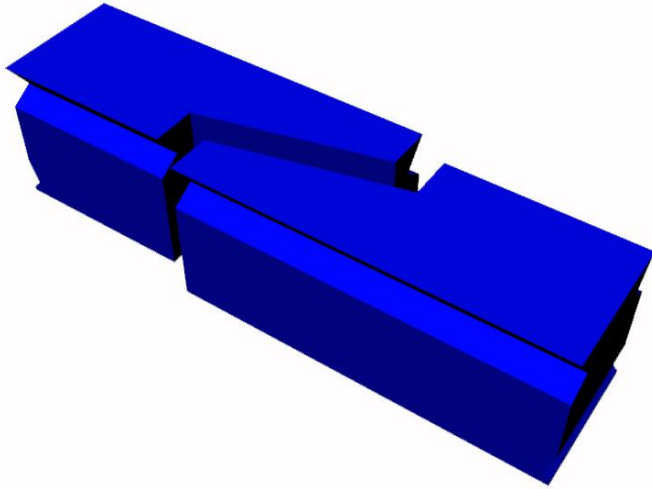
Rabbet



Lavanha, c. 1600

- PT – Alefriz
- SP – Alefriz
- CT – Carena
- FR – Râblure
- IT – Scanalatura, battura
- UK – Rabbet
- NL – Sponning

Keel Scarves



PT – Escarva
SP – Escarpe
CT –
FR – Écart
IT – Caletatura
UK – Scarf
NL –

PT – Escarva lavada vertical
SP –
CT –
FR – Écart vertical en sifflet
IT –
UK – Flat vertical scarf
NL –

Keel/Stem Scarf. Emanuel Point Shipwreck, 1559



3D Model: Kevin Gnadinger

Keel Scarves

PT – Escarva lavada horizontal

SP – Escarpe

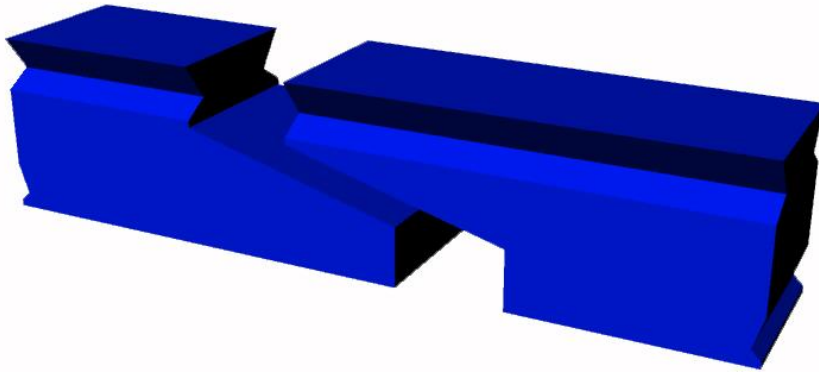
CT –

FR – Écart horizontal en sifflet

IT – Caletatura a paella

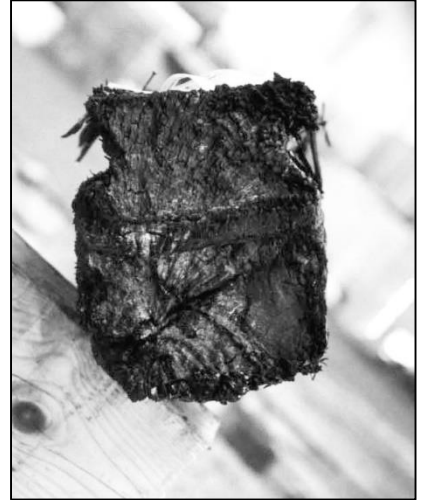
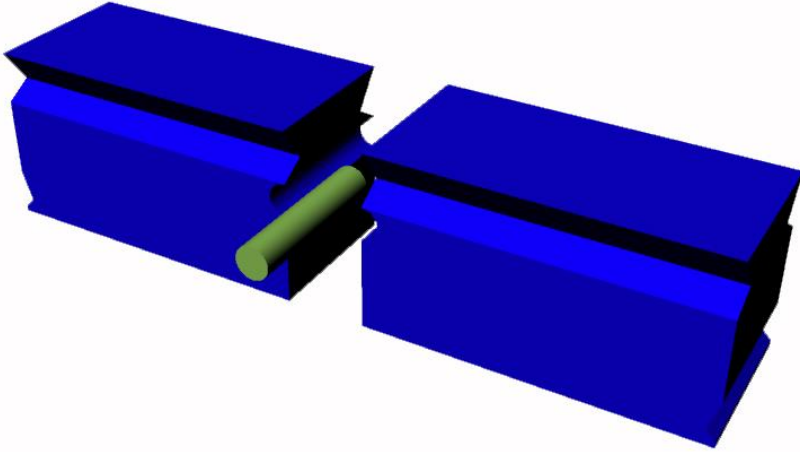
UK – Flat horizontal scarf

NL –



3D Model: Kevin Gnadinger

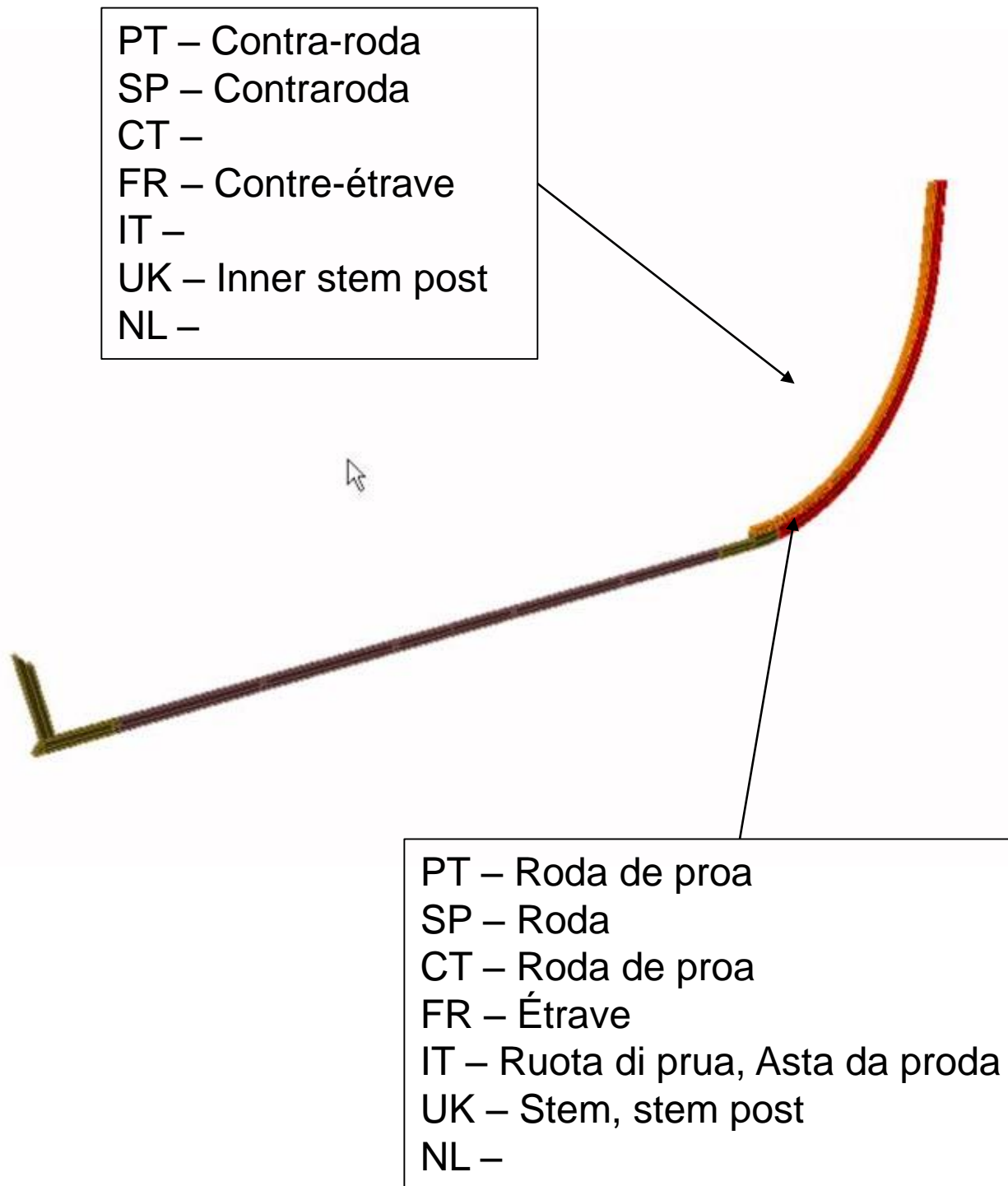
Keel Scarves



Keel Scarf. Cais do Sodré, c. 1500

- PT –
- SP –
- CT –
- FR – Écart plat avec tenons
- IT –
- UK – But scarf w/ waterstop
- NL –

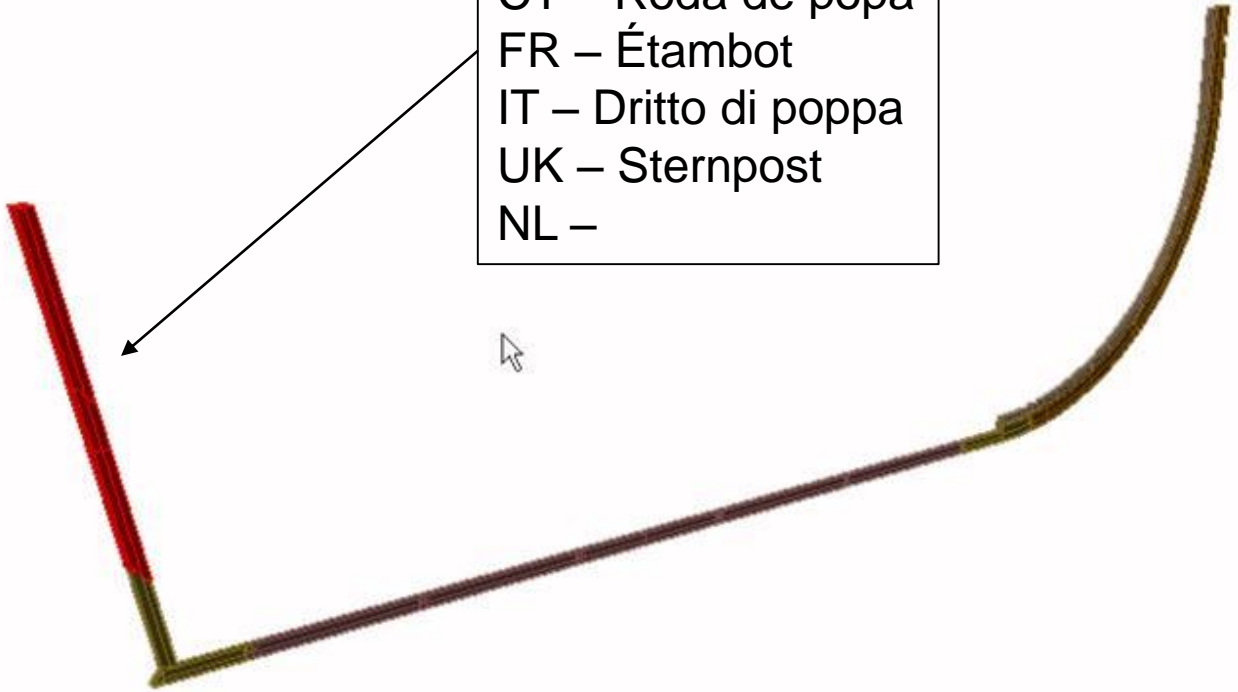
Keel and Posts



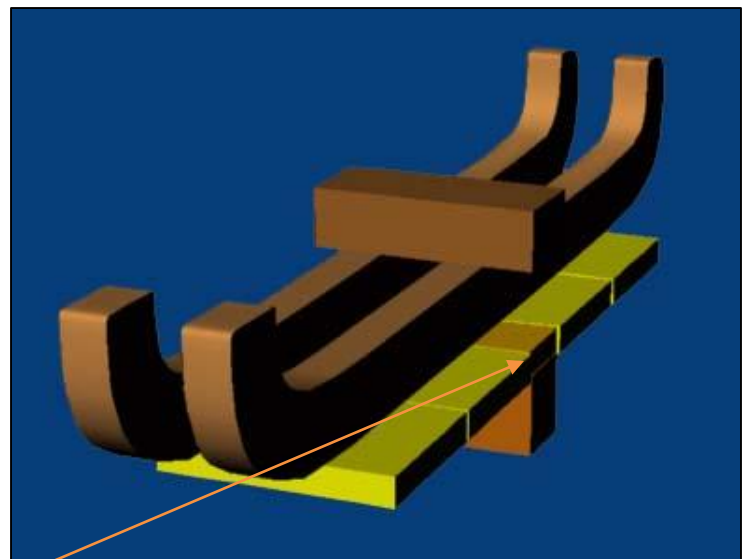
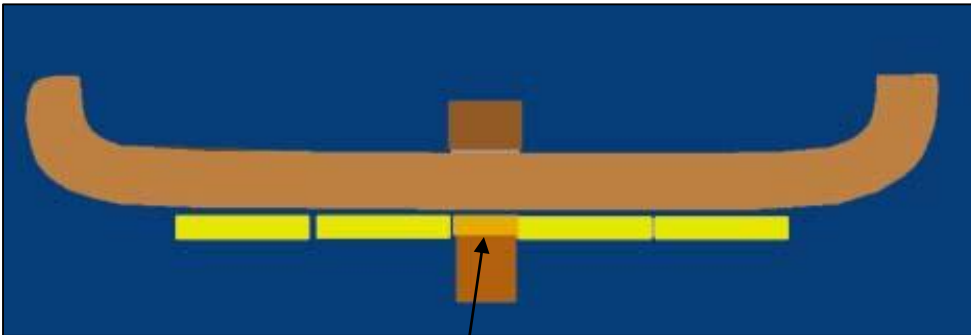
3D Model: Alex Hazlett

Keel and Posts

PT – Cadaste
SP – Codaste
CT – Roda de popa
FR – Étambot
IT – Dritto di poppa
UK – Sternpost
NL –



Keel and Posts

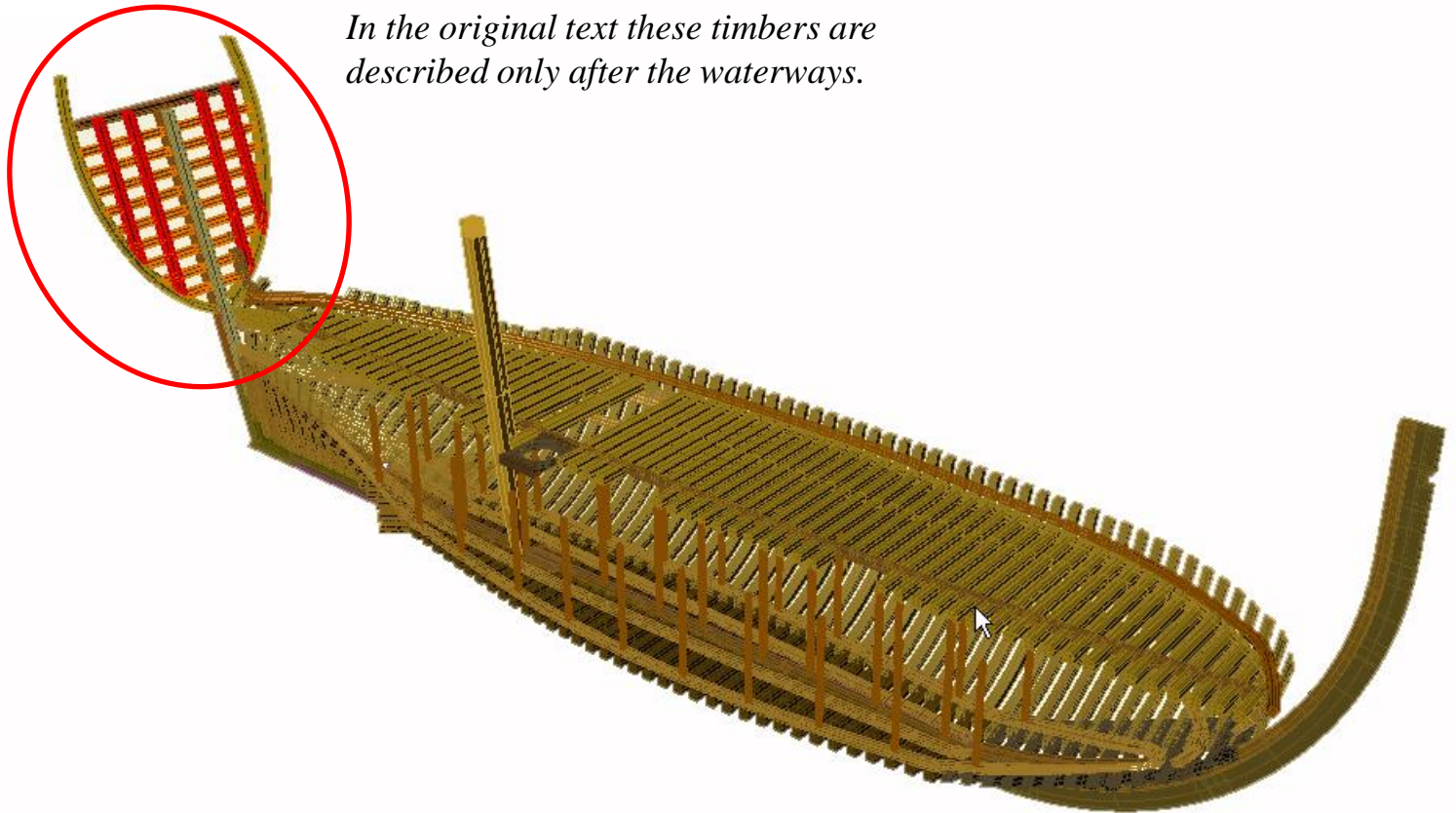


PT – **Contraquilha/Sobressano**
SP – Sobrequilla
CT – Sobrequilla
FR – Fausse quille
IT –
UK – Deadwood
NL –

Stern panel

In English one says that this ship has a square tuck.

In the original text these timbers are described only after the waterways.

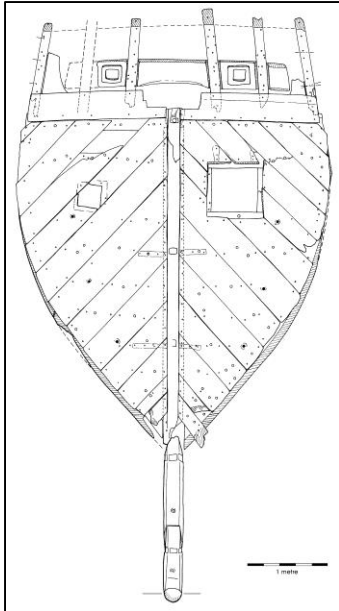


PT – Painel de popa
SP – Espejo o panel de popa
CT –
FR – Arcasse, tableau arrière
IT – Specchio di poppa
UK – Stern panel
NL –

3D Model: Alex Hazlett

Stern panel

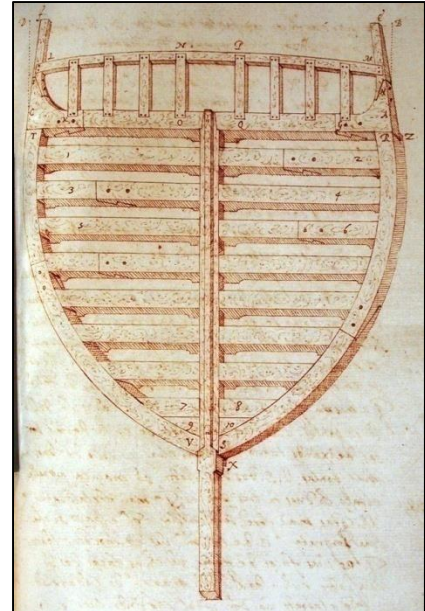
San Juan, 1565:



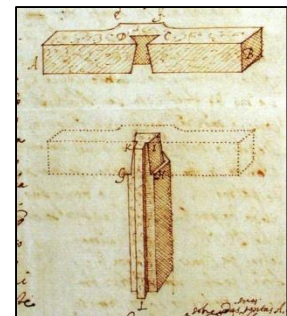
San Juan, 1565:



Lavanha, c. 1600:



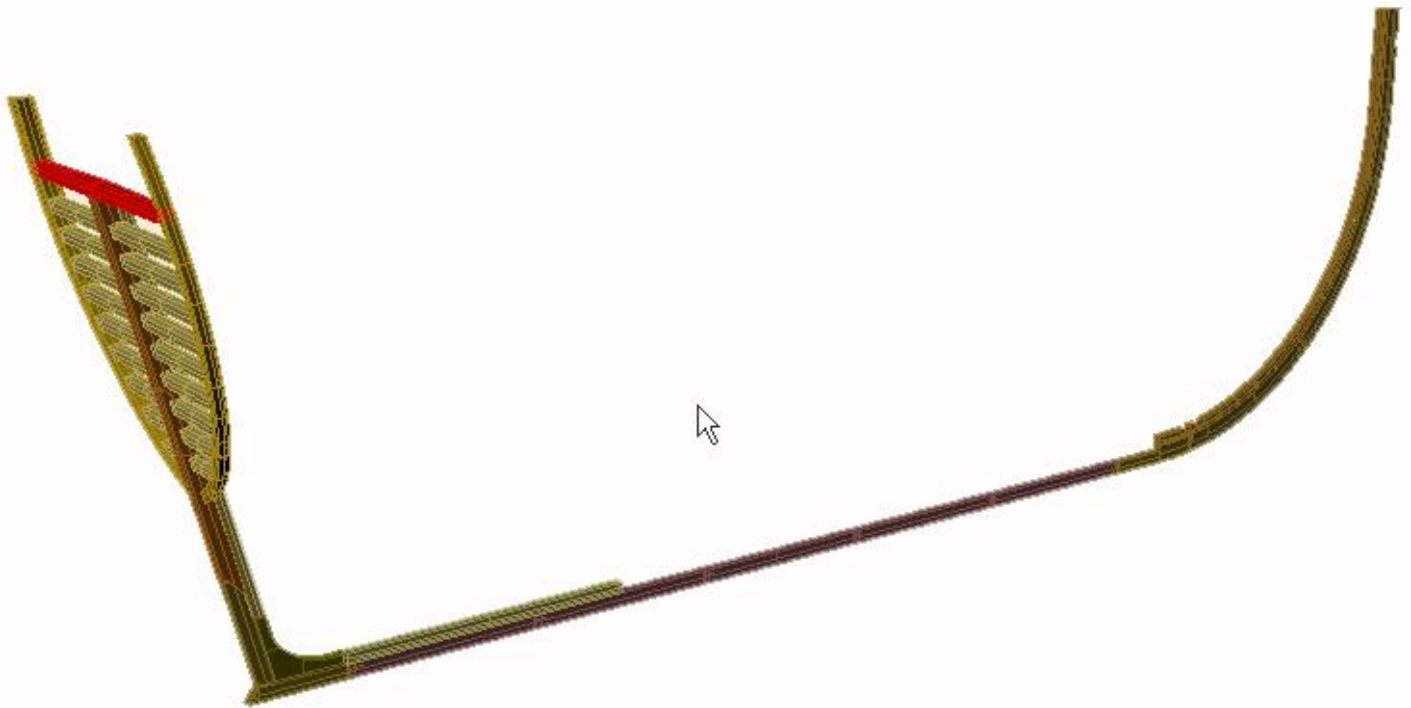
Detail of the top of the sternpost and the scarf of the lower transom:



- PT – Painel de popa
- SP – Espejo de popa
- CT –
- FR – Arcasse, tableau arrière
- IT – Specchio di poppa
- UK – Stern panel
- NL –

Stern panel components

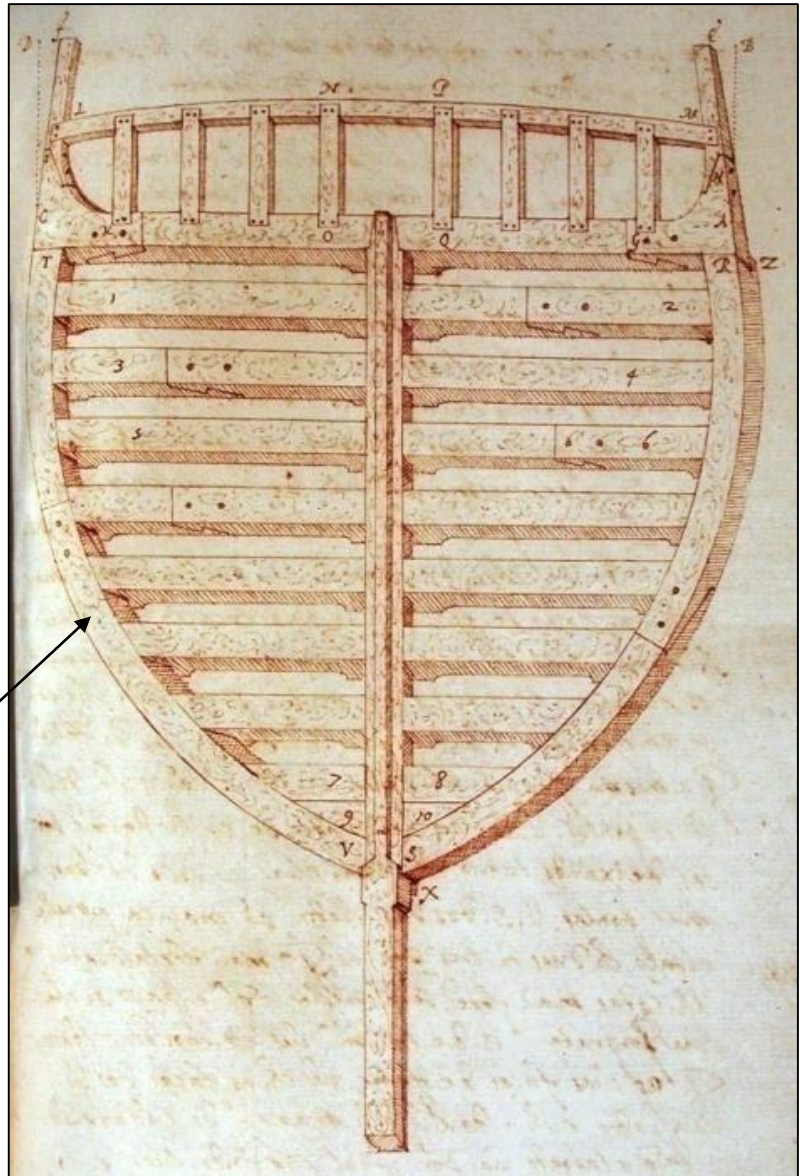
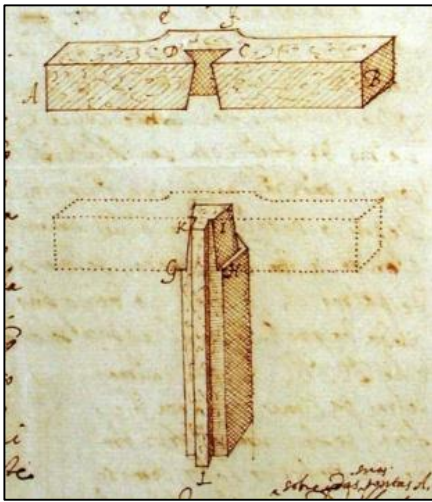
In English one says that this ship has a square tuck.



PT – Gio
SP – Yugo
CT –
FR – Barre d'arcasse
IT –
UK – Transom
NL –

3D Model: Alex Hazlett

Stern panel components

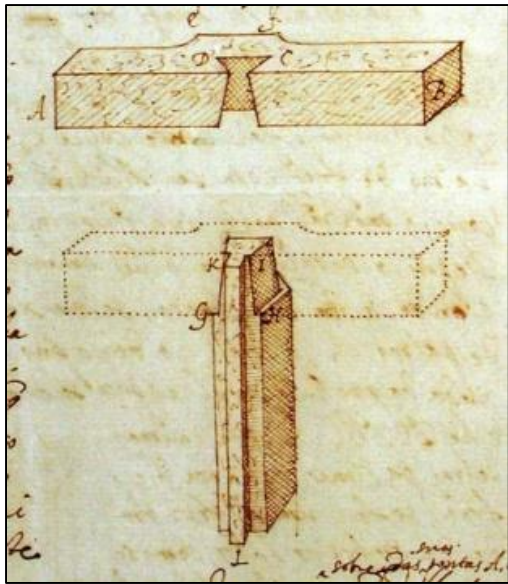


Lavanha, c. 1600

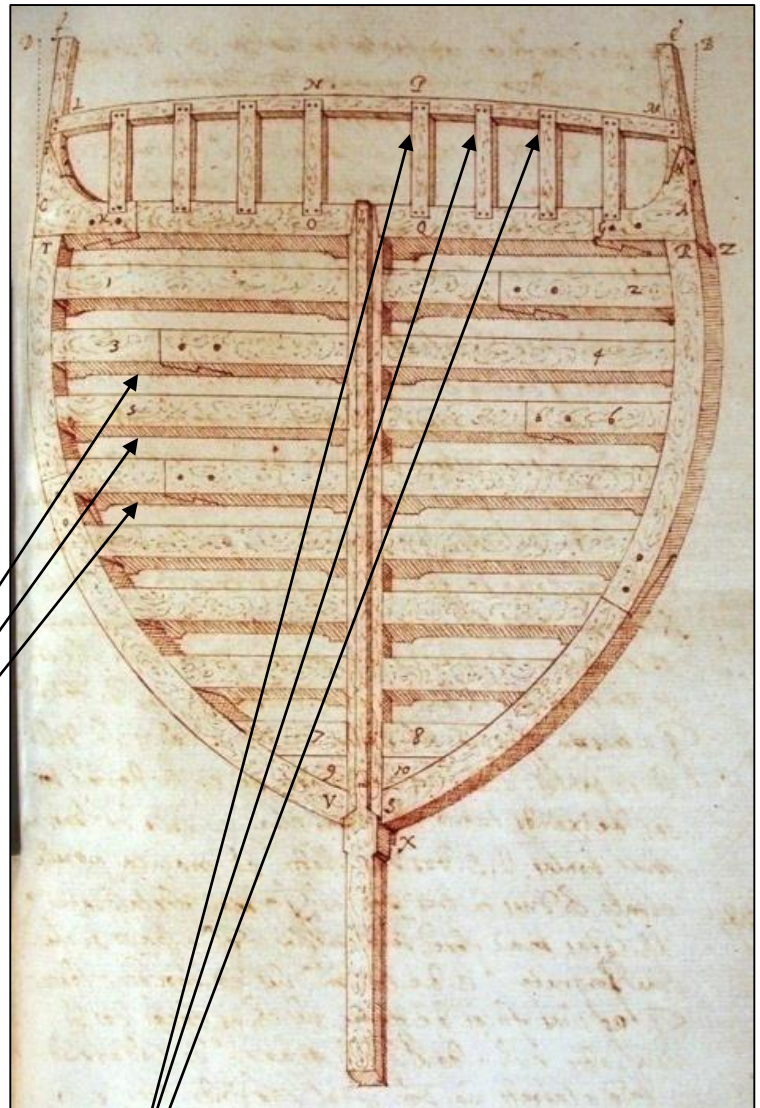
- PT – Pé manco
- SP – Aleta
- CT –
- FR – Estain, cornière
- IT –
- UK – Fashion piece
- NL –

Abóbada is the upper part of the fashion pieces, which leans inwards.

Stern panel components



Detail of the connection
sternpost / transom
(Lavanha, c. 1600)



Lavanha, c. 1600

PT – Porcas

SP –

CT –

FR – Barres d'arcasse

IT –

UK – Transoms

NL –

PT – Cambotas / Barrotes

SP –

CT –

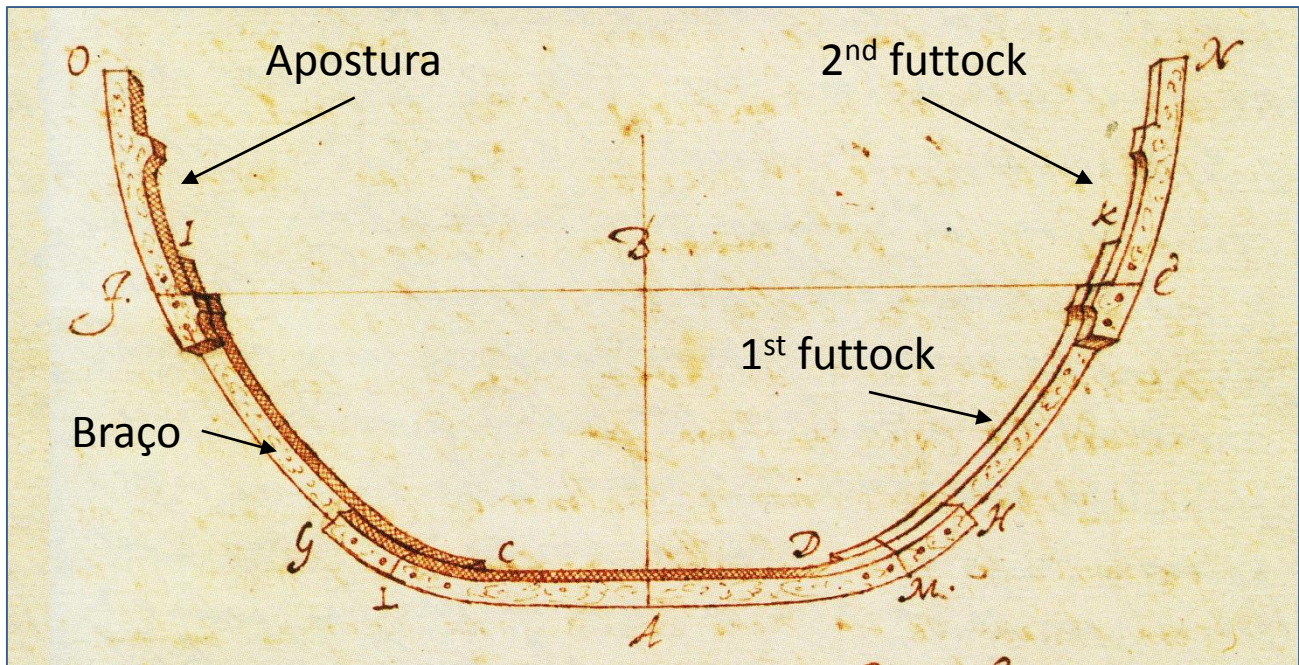
FR –

IT –

UK –

NL –

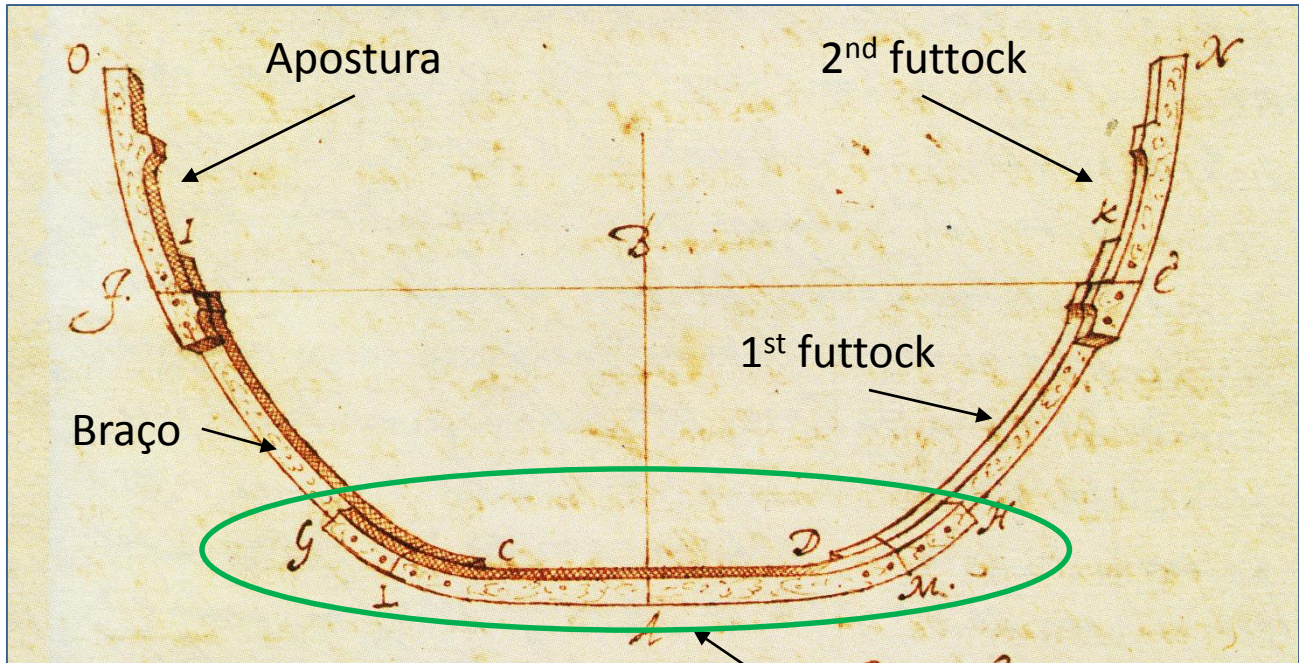
Frames



Lavanha, c. 1600

PT – Baliza
SP – Cuaderna
CT – Quaderna
FR – Couple (2), membrure (1)
IT – Ordinata. madier
UK – Frame
NL –

Frames

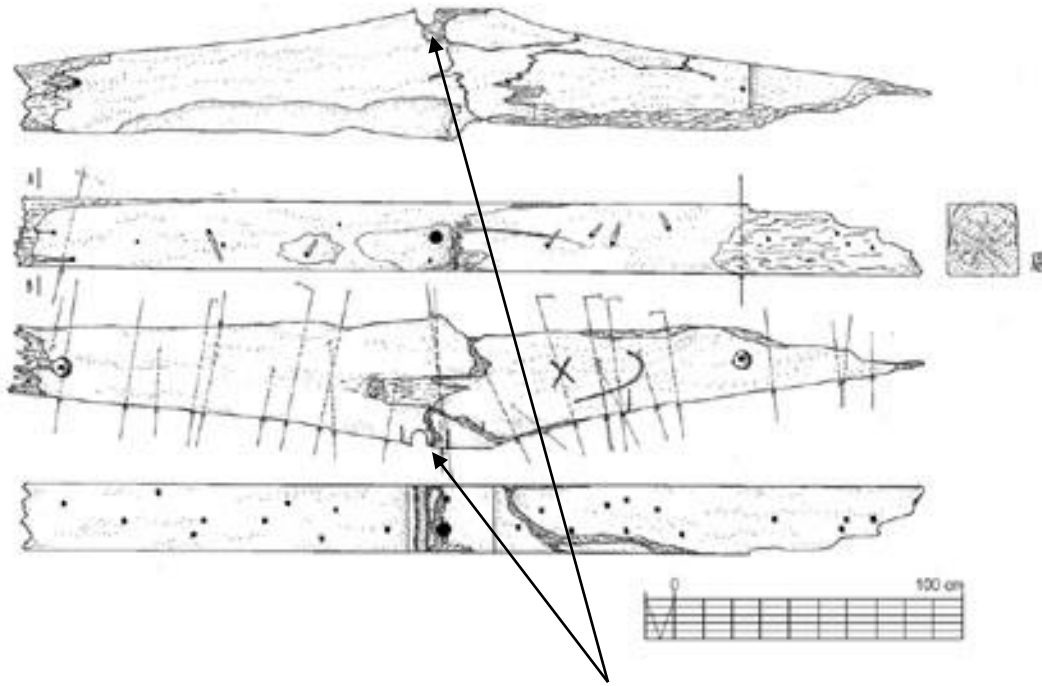


Lavanha, c. 1600

Caverna / Floor timber

- PT – Caverna
- SP – Varenga
- CT – Medis, medissos
- FR – Varangue, madier (in the Med.)
- IT – Madiere, piana (flat bottom), chorba, corba (Venice),
maggiero, majolo, maieu
- UK – Floor timber
- NL –

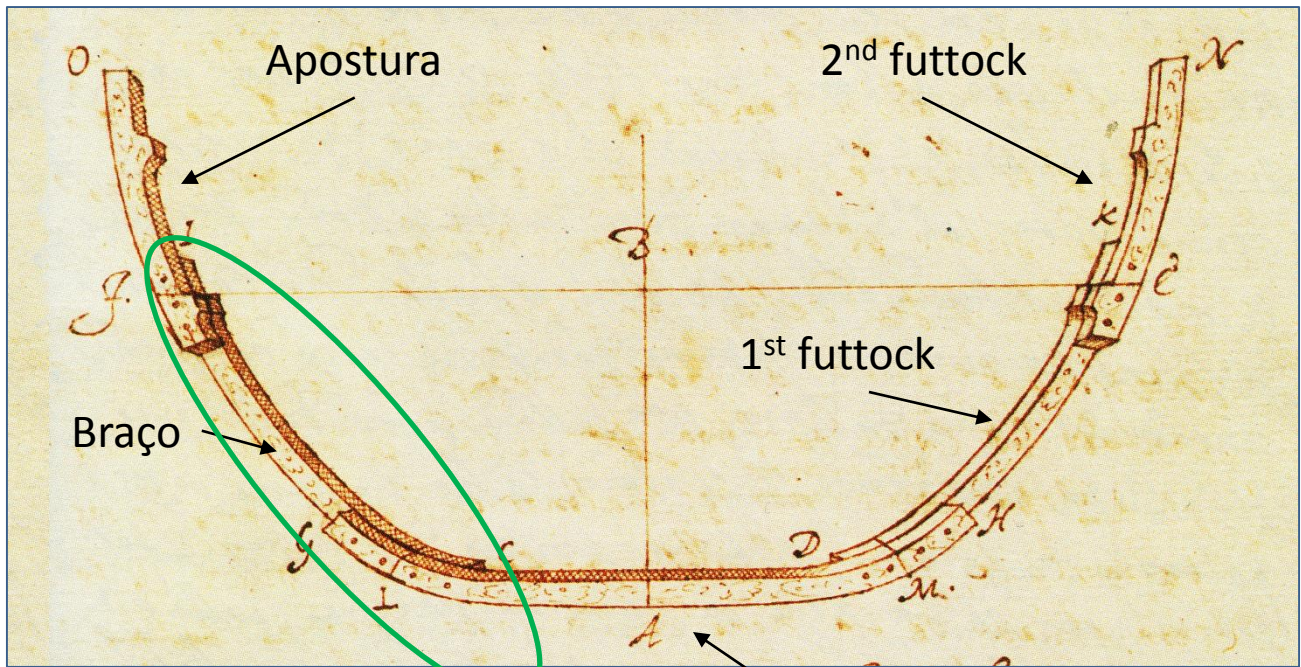
Frames



Embornal / Limber hole

- PT – Embornal
- SP – Imbornal
- CT –
- FR – Canal d'anguiller, anguiller
- IT –
- UK – Limber Hole
- NL –

Frames

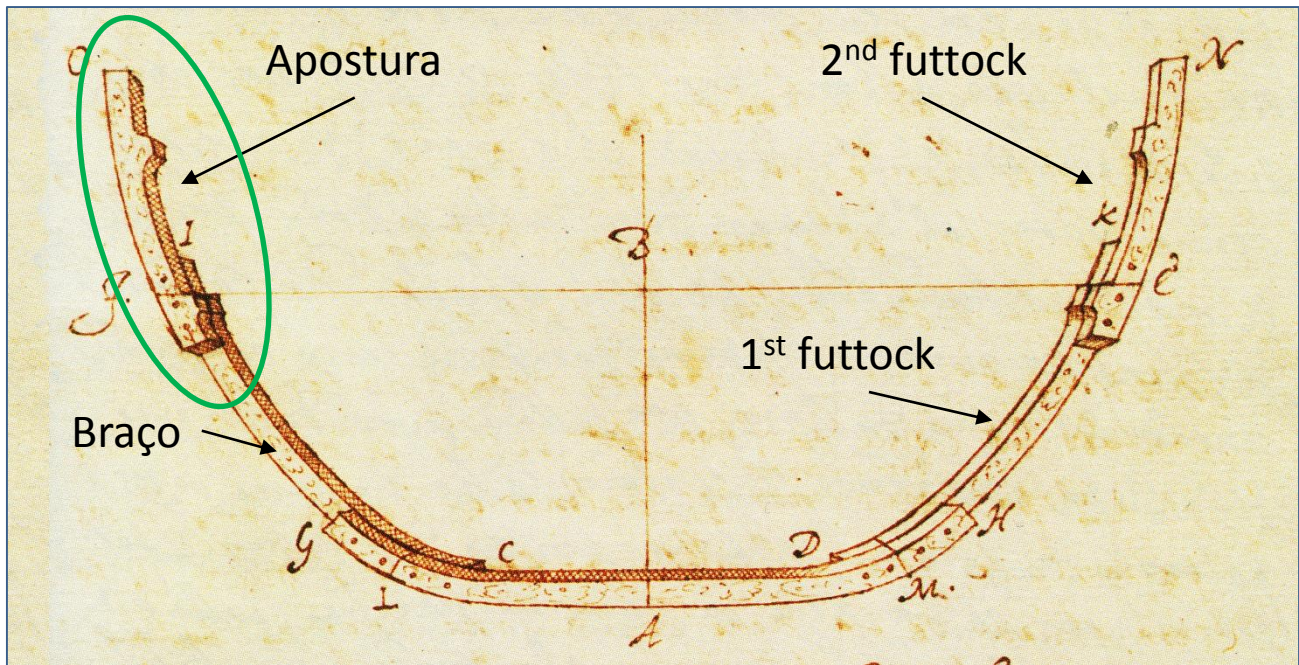


Lavanha, c. 1600

Caverna / Floor timber

- PT – Braço
- SP – Genol, estamenera
- CT – Estamenera
- FR – Genou, estamenaire
- IT – Staminale, forcame (Venice)
- UK – Futtock
- NL –

Frames

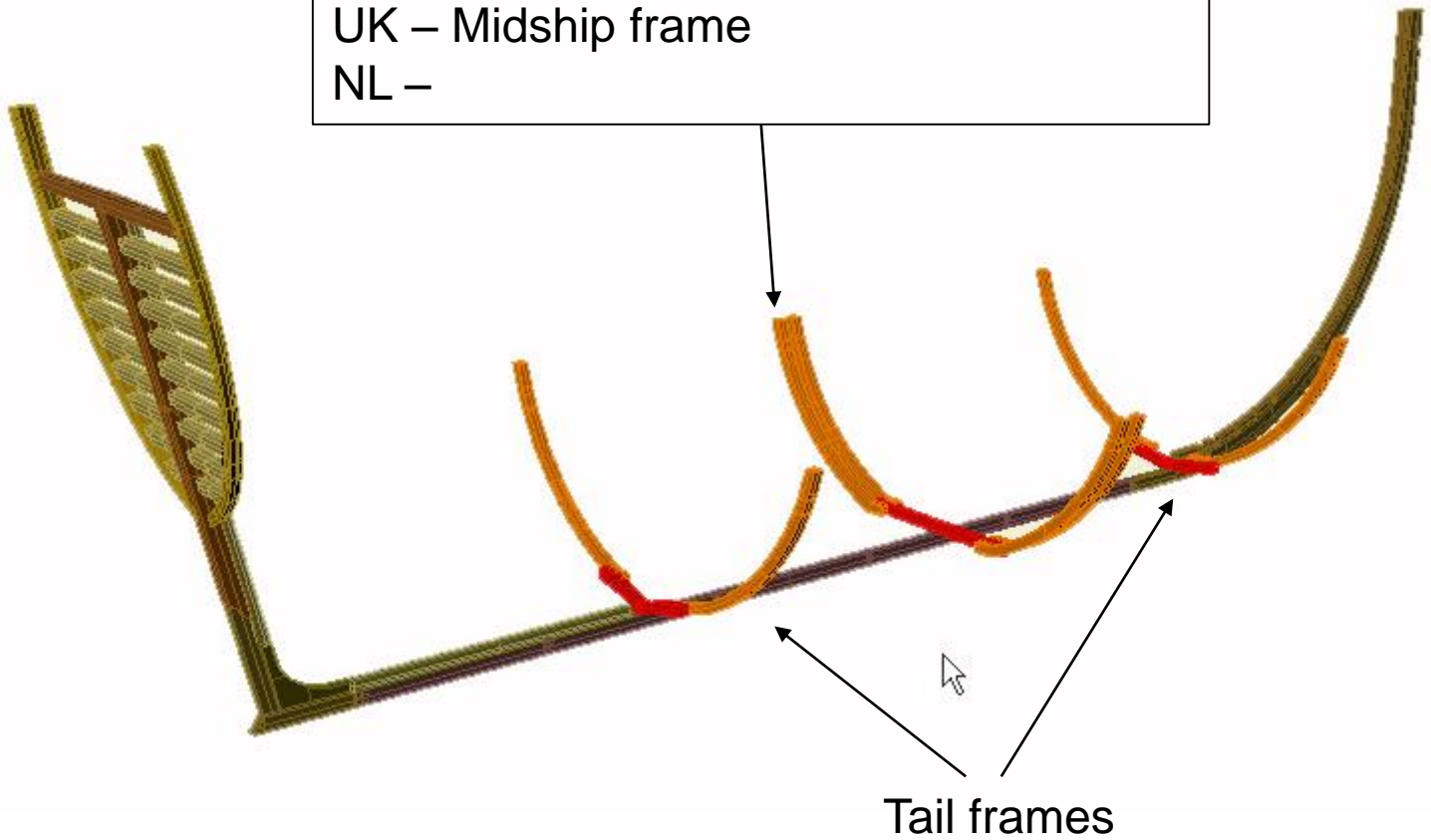


Lavanha, c. 1600

PT – Apostura
SP – Ligazón
CT –
FR – Allonge
IT – Scalmo
UK – Second Futtock
NL –

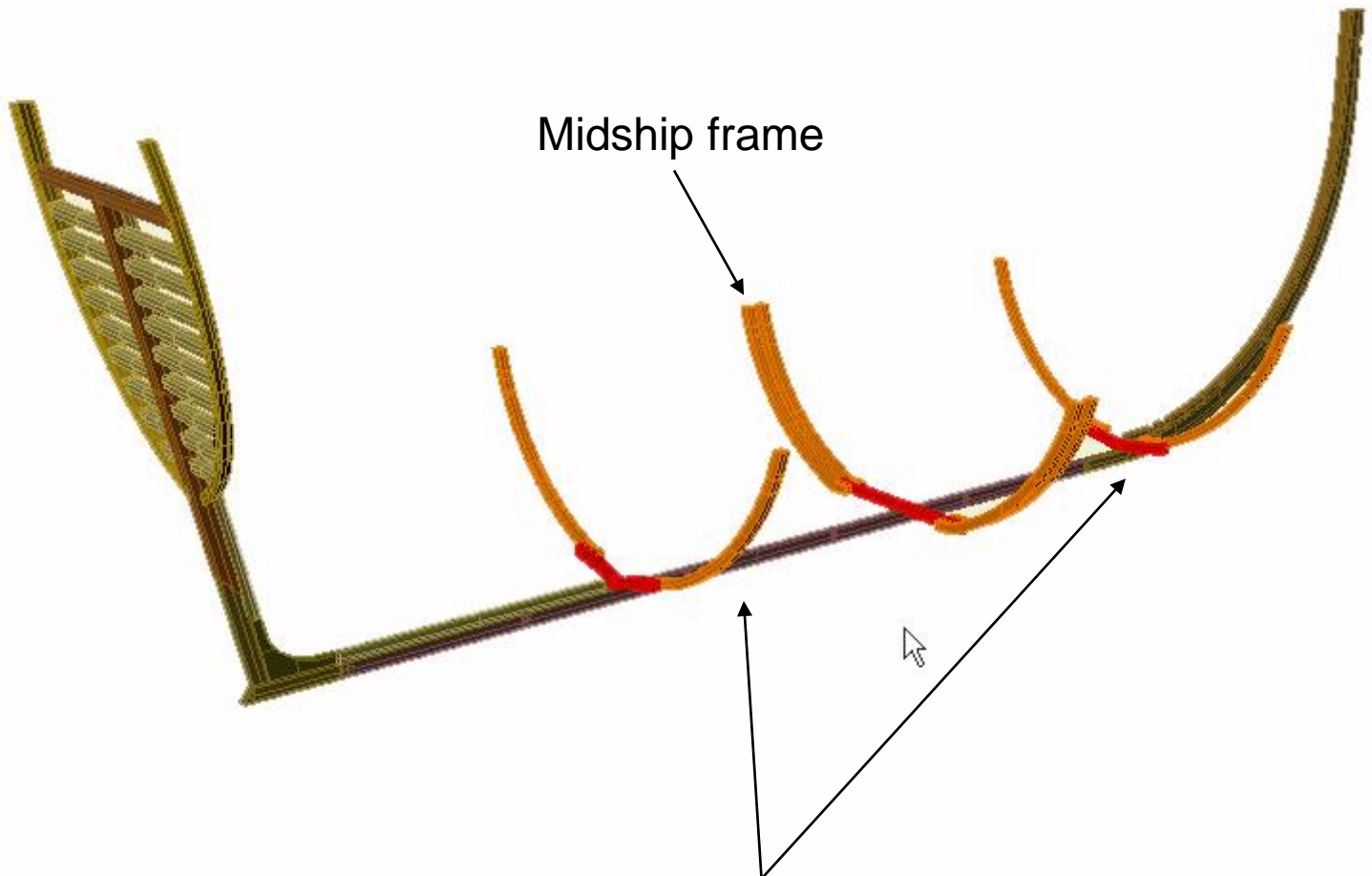
Midship and Tail Frames

PT – Caverna mestra
SP – Cuaderna maestra
CT –
FR – Maitre couple
IT – Madiere centarle, Maistra di mezzo,
chorba di mezzo (Venice)
UK – Midship frame
NL –



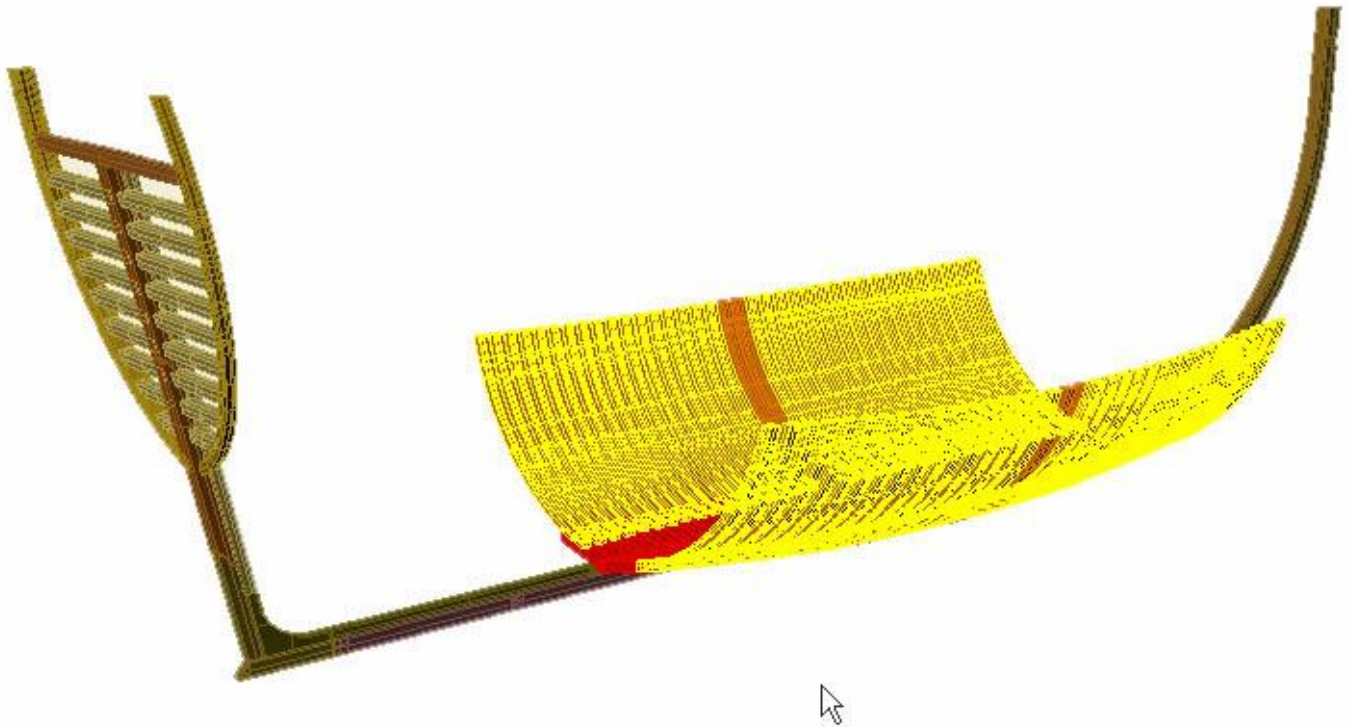
3D Model: Alex Hazlett

Midship and Tail Frames



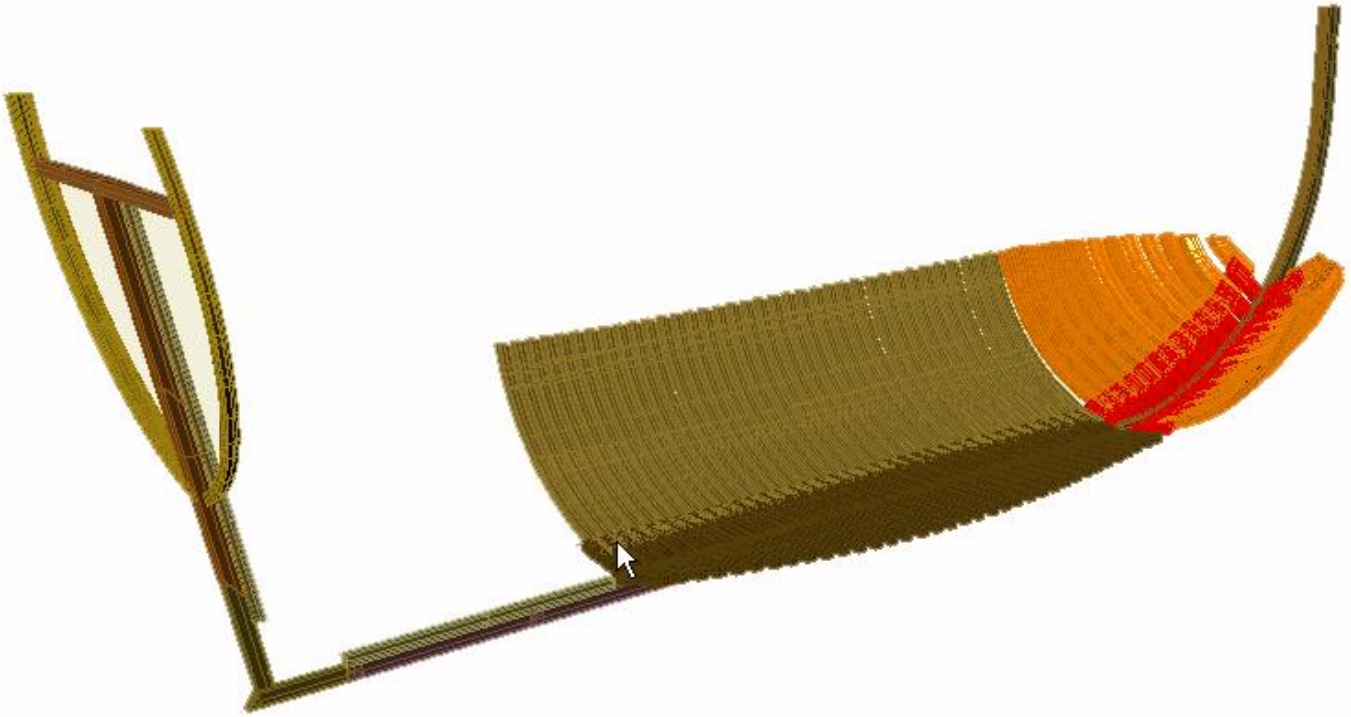
PT – Almogamas
SP – Redeles, Cuadras
CT –
FR – Couples/Membrures de balancement
IT – Cavo de sesto (Venice), Chodiera chorba
UK – Tailframes
NL –

Pre-designed frames



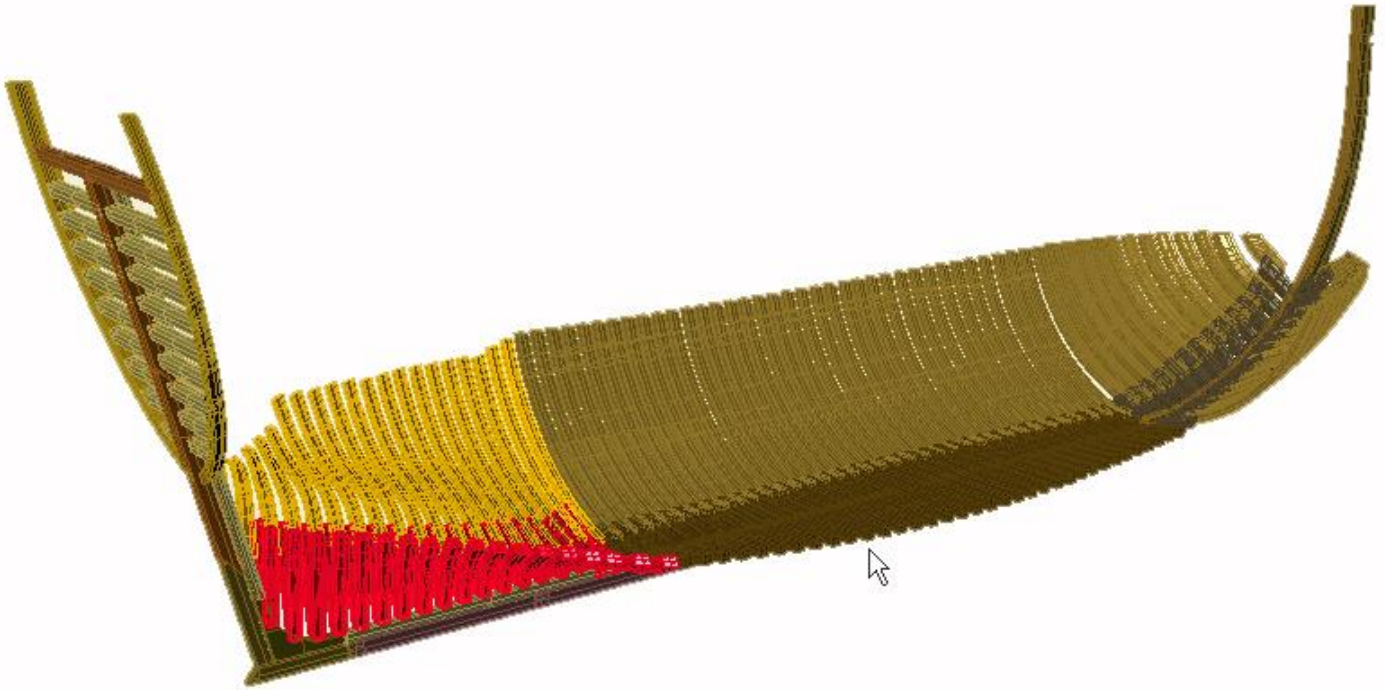
- PT – Cavernas de conta
- SP – Maderos de cuenta
- CT –
- FR – Couple/Membrure gabariées or pre-déterminées
- IT –
- UK – Pre-designed frames
- NL –

Frames



- PT – Enchimentos da proa
- SP – Curvamentos de proa, picas
- CT –
- FR – Fourcats
- IT –
- UK – V-frames
- NL –

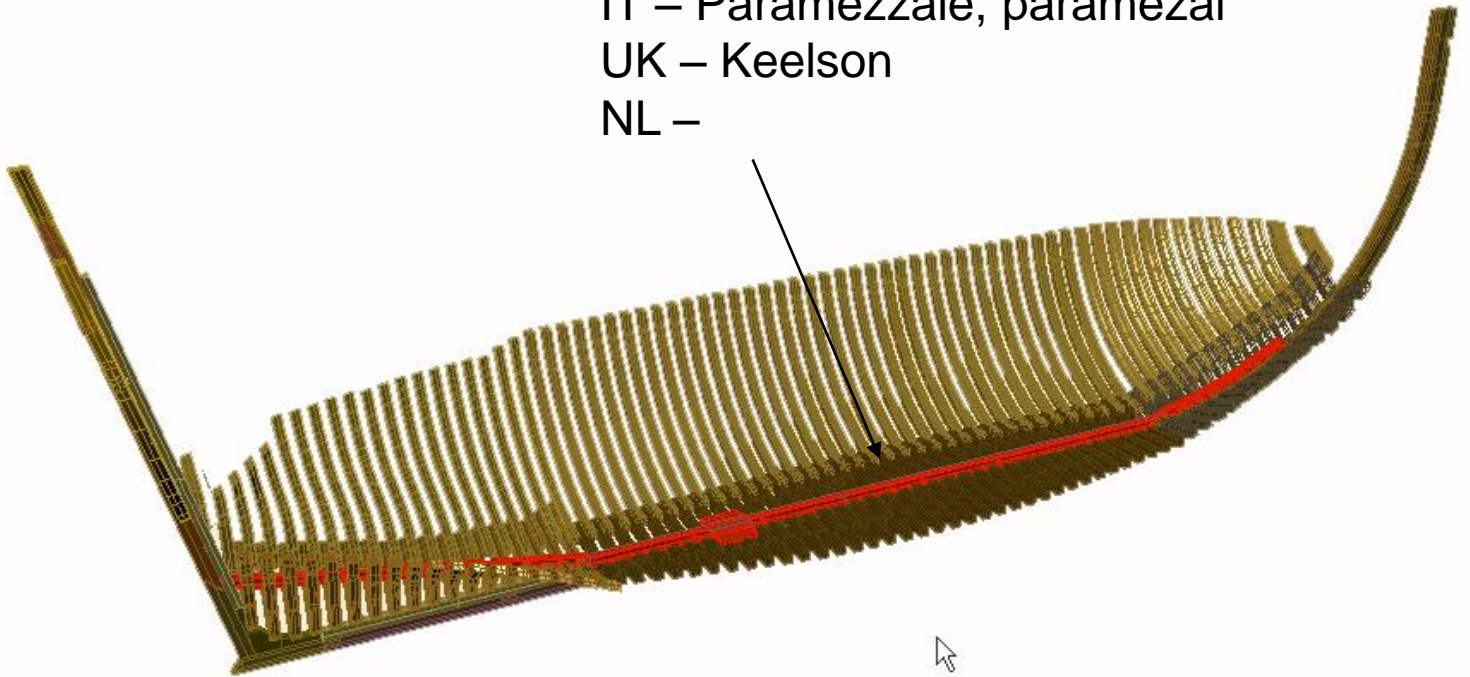
Frames



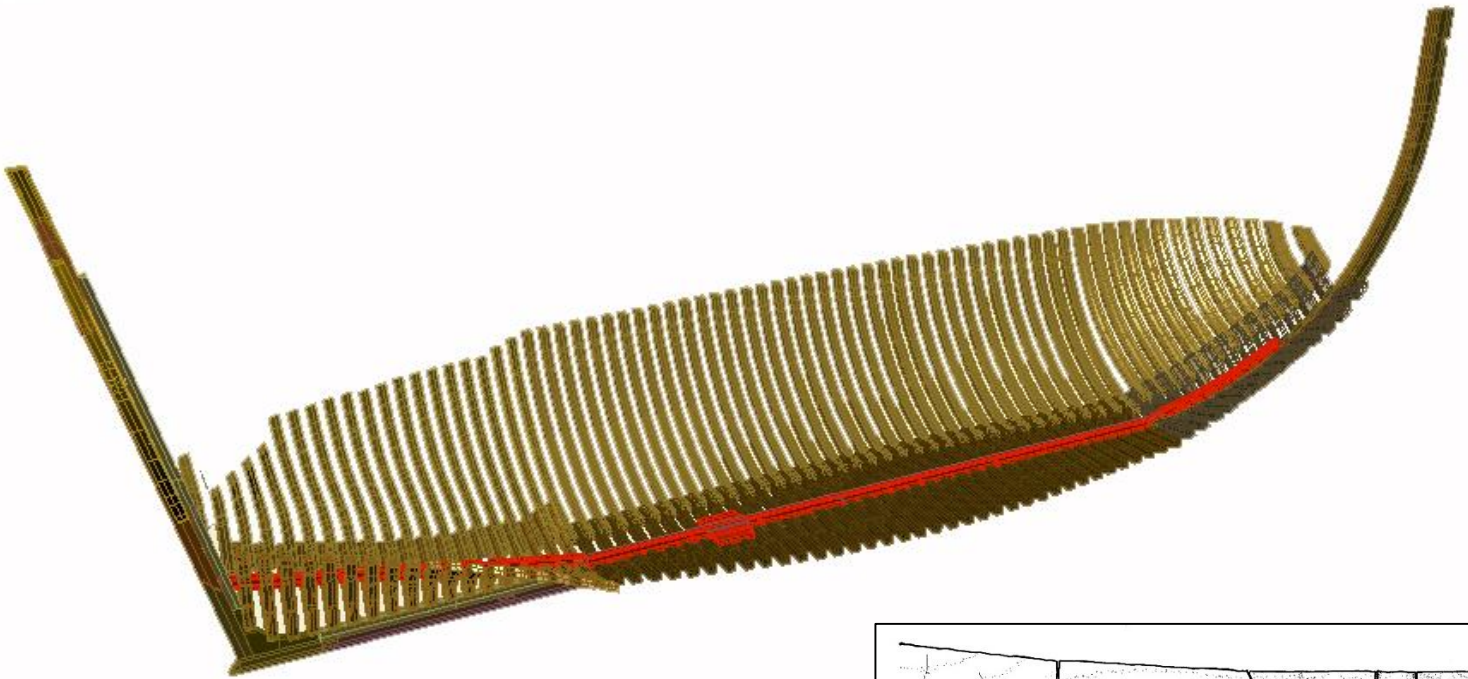
- PT – Enchimentos da popa, picas
- SP – Curvamentos de popa, alabes, picas
- CT –
- FR – Fourcats
- IT –
- UK – Y-frames
- NL –

Keelson

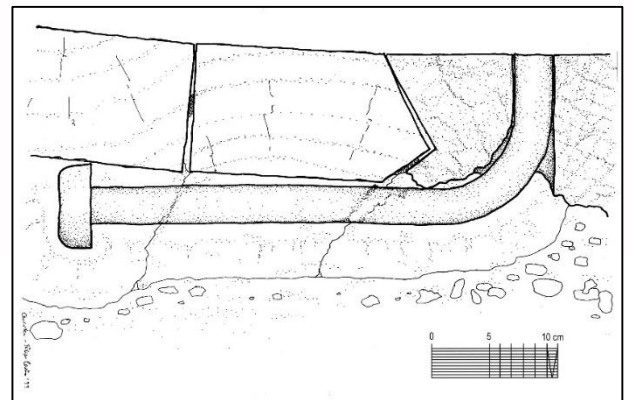
- PT – Sobrequilha
- SP – Sobrequilla
- CT – Paramitjal
- FR – Carlingue
- IT – Paramezzale, paramezal
- UK – Keelson
- NL –



Bolts connecting keel & keelson



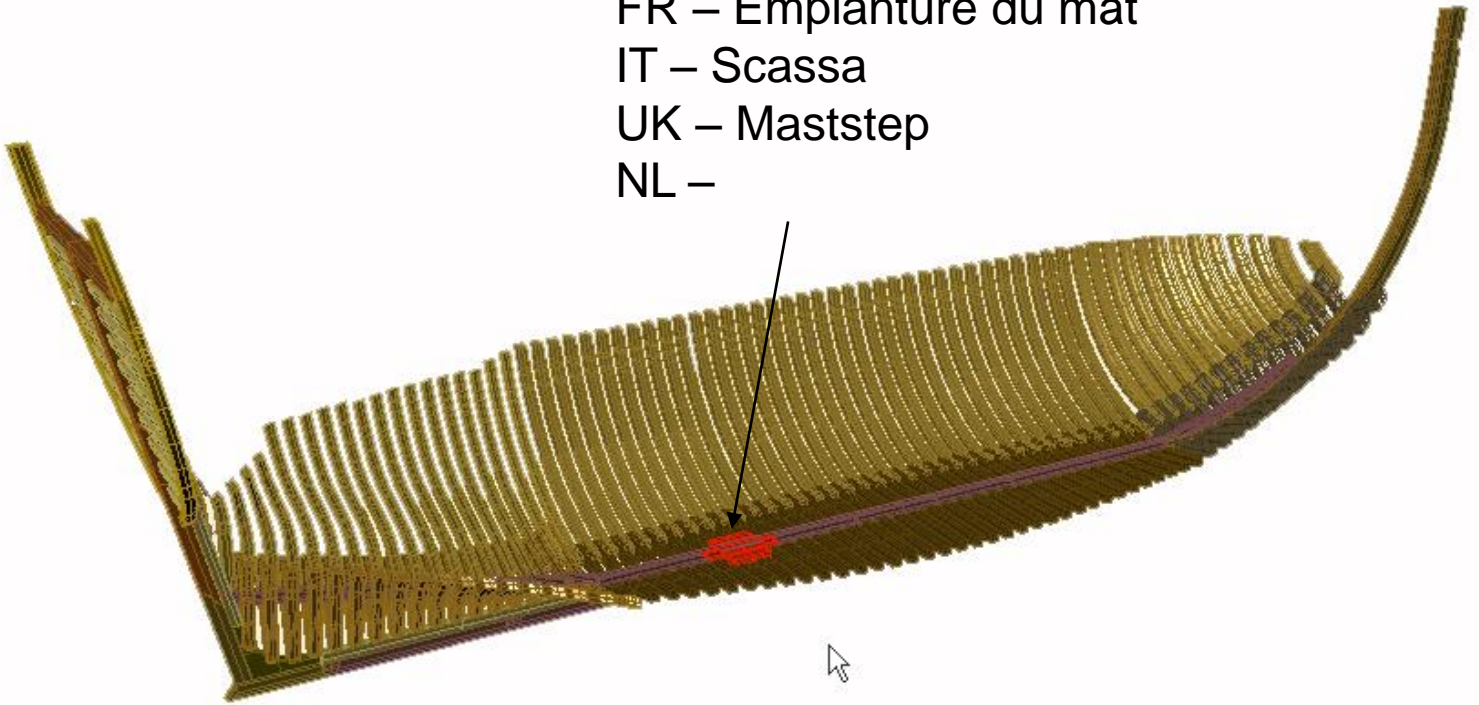
- PT – Aldraba
- SP – Perno
- CT –
- FR – Broche
- IT –
- UK – Keel Bolt
- NL –



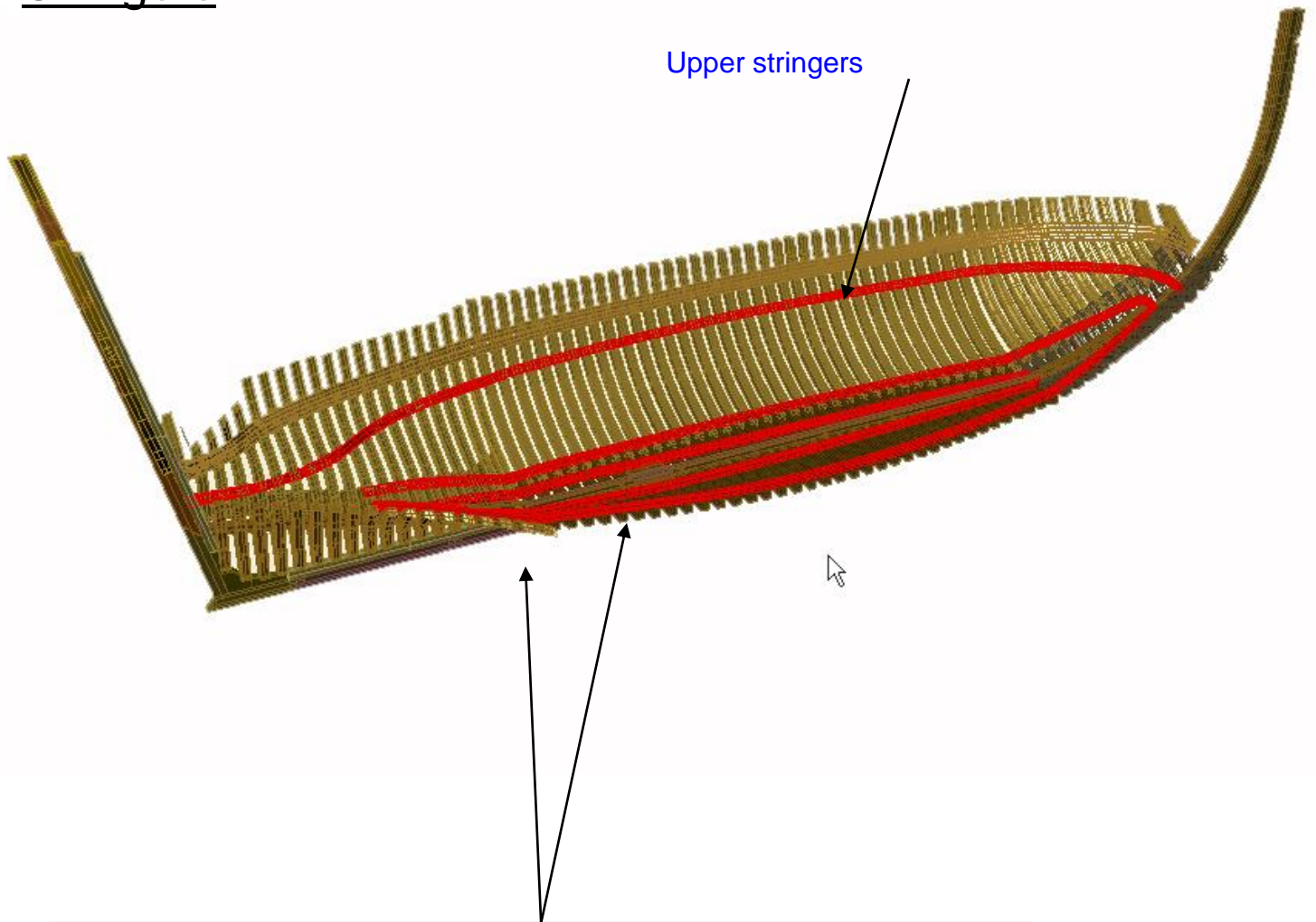
*Always inserted from underneath.
The Pepper Wreck bolts were bent
during the shipwreck process.*

Maststep

PT – Carlinga
SP – Carlinga
CT – Paramola
FR – Emplanture du mât
IT – Scassa
UK – Maststep
NL –



Stringers



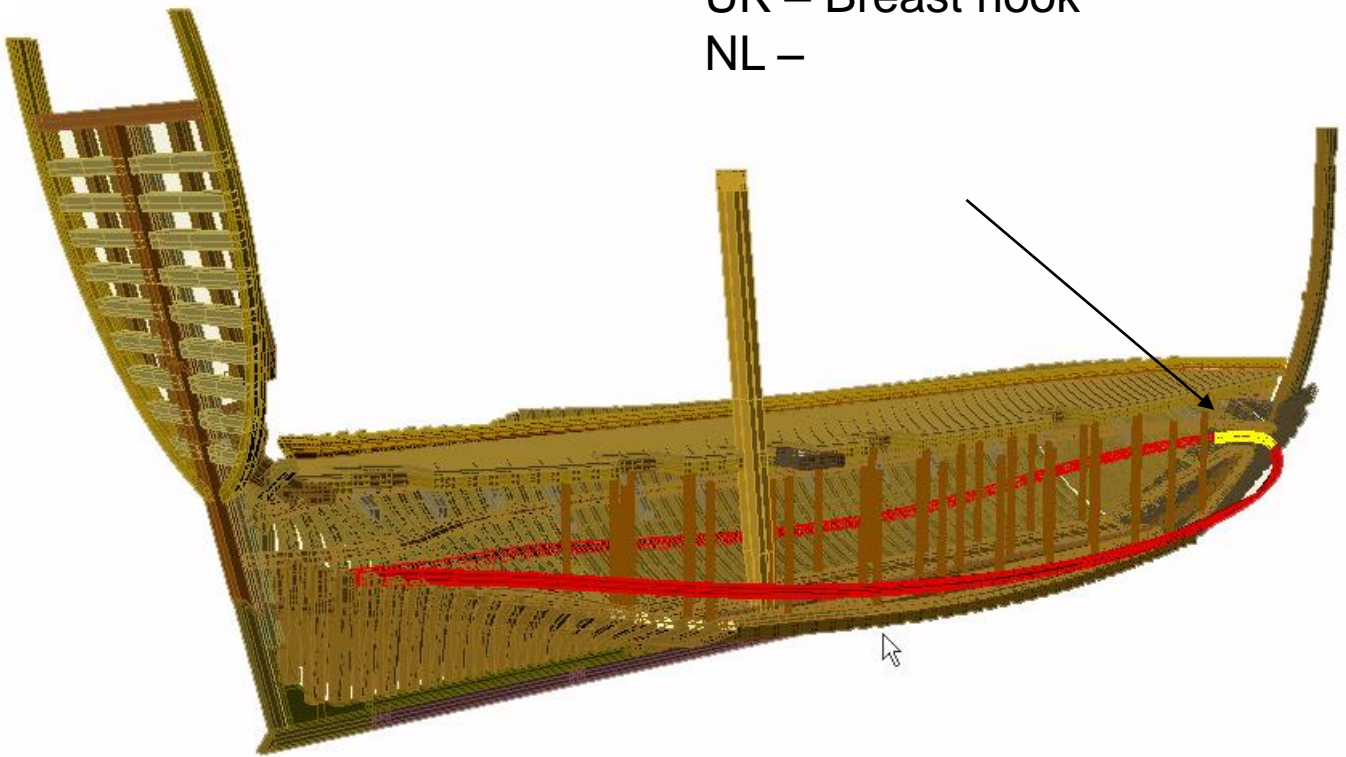
- PT – Escoas do fundo
- SP – Palmejares (Galicia: vagras)
- CT – Serra, sobrescoa
- FR – Lisse
- IT – Serrettone, paraschossola (Venice)
- UK – Bottom stringers, foot wales, thick stuff
- NL –

The stringers that run near the keel or over the connection floors/futtocks

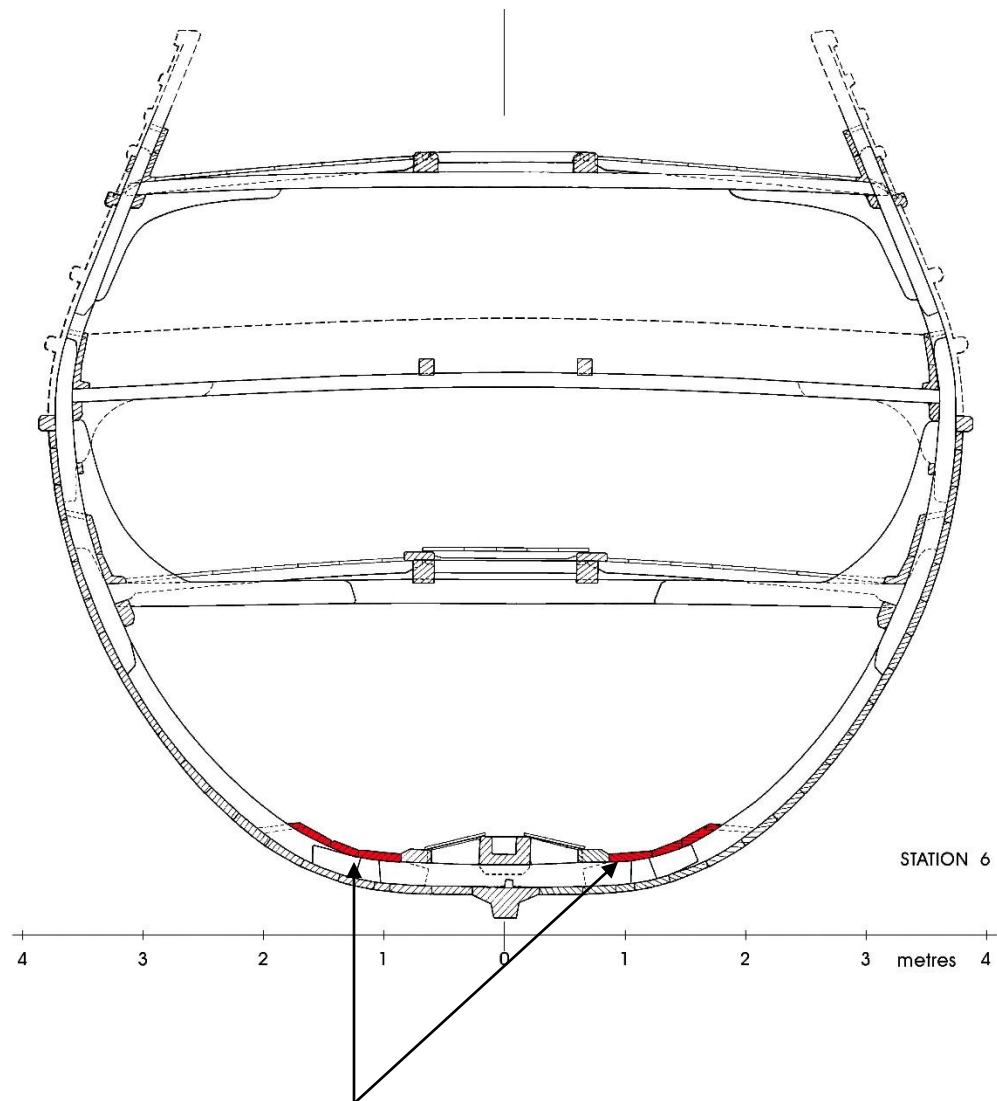
3D Model: Alex Hazlett

Stringers and breast hook

- PT – Bussarda
- SP – Busarda, regala
- CT –
- FR – Guirlandes
- IT –
- UK – Breast hook
- NL –

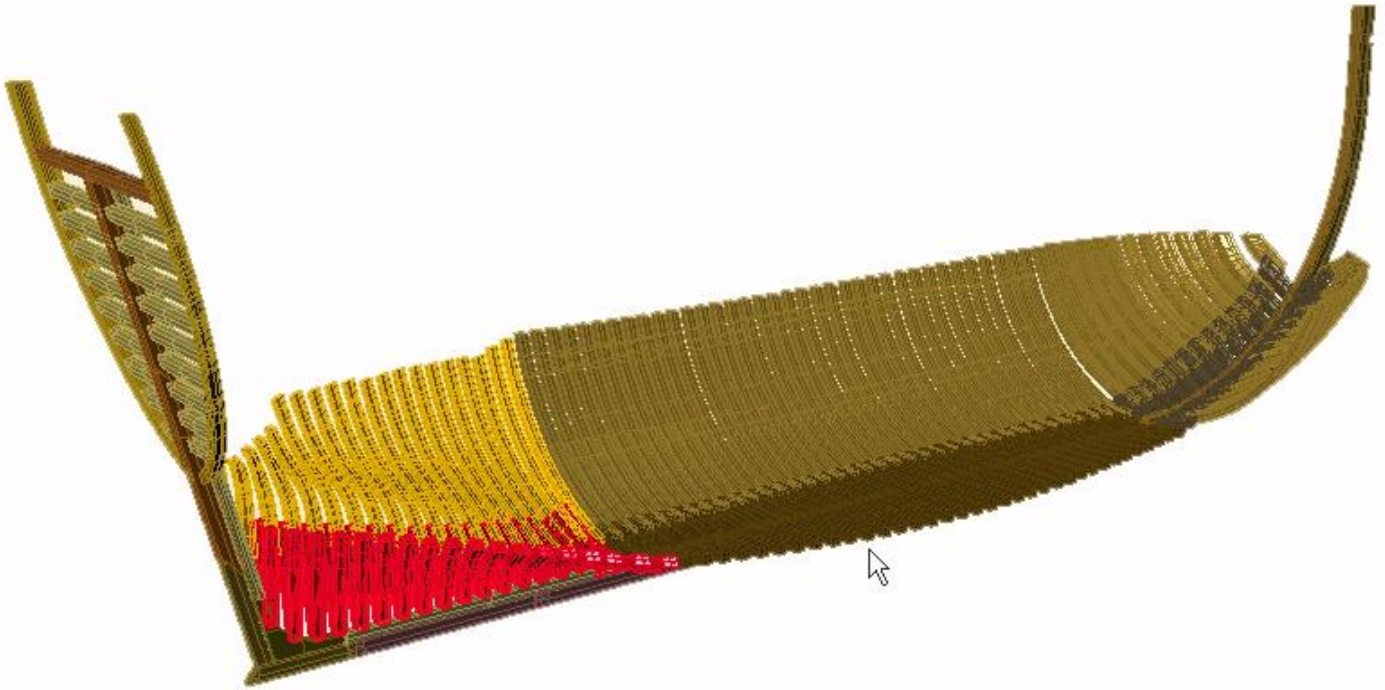


Ceiling



- PT – Forro interior
- SP – Serreta, vagra, forro Interior
- CT – Serreta
- FR – Vaigre
- IT – Serrette, paramezzale dele scose
- UK – Ceiling planking
- NL –

Orlop deck



Portuguese and Spanish ships had a lower deck, over the ballast, without planking over the beams.

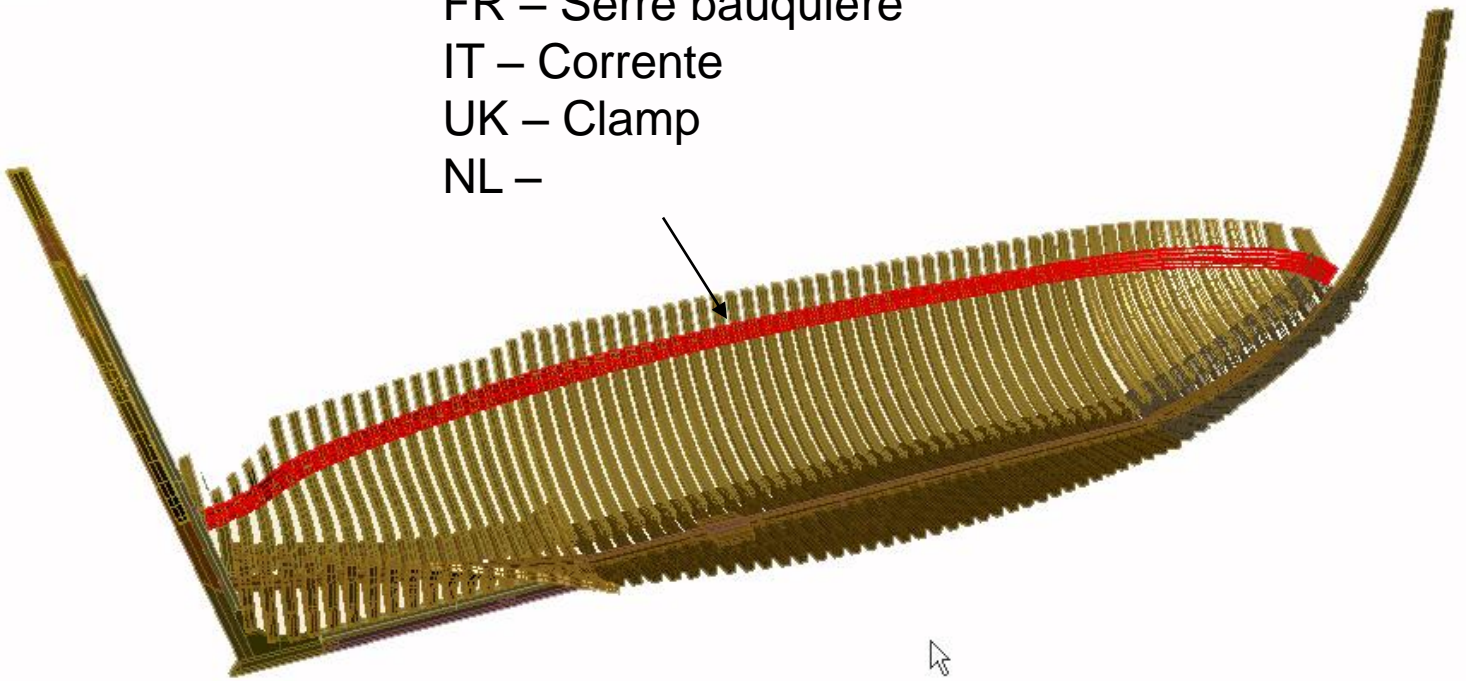
PT –
SP – Baos vacios
CT –
FR – Faux pont
IT –
UK – Orlop deck
NL –



Beam without planking nail holes found on the Cais do Sodré shipwreck.

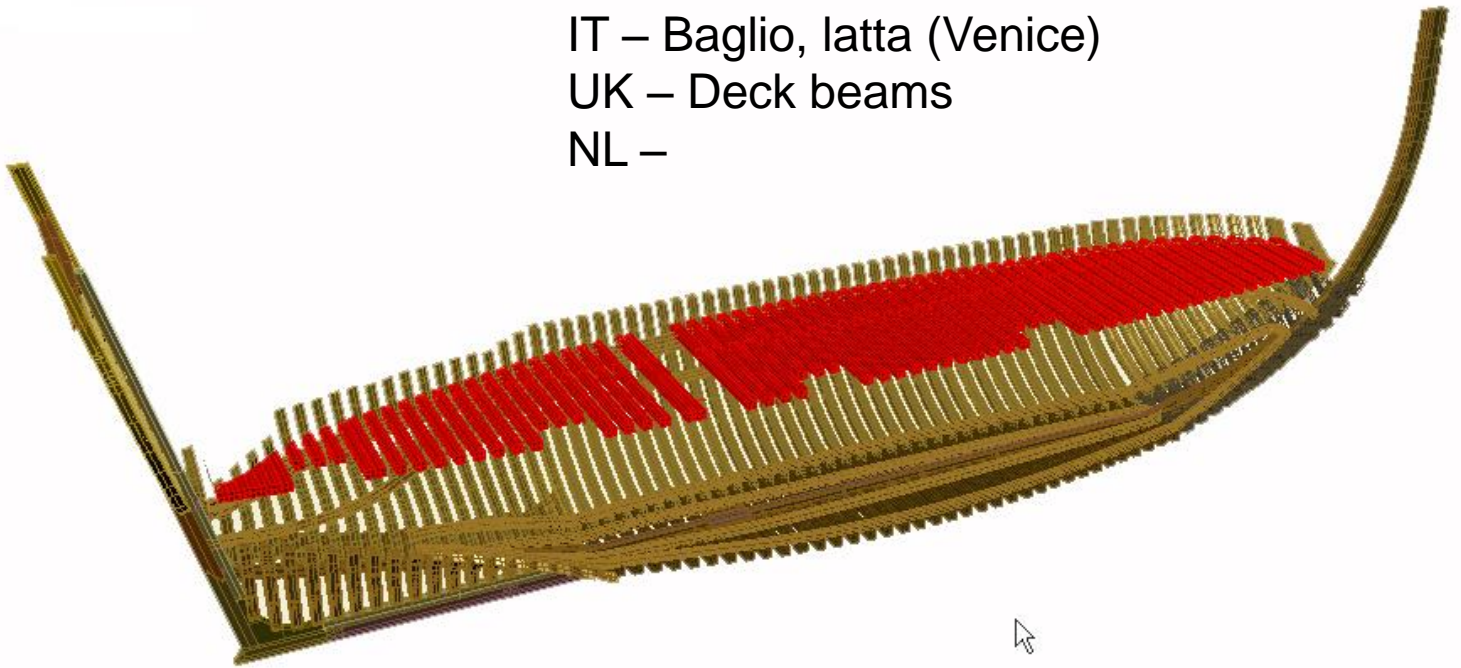
Clamps

- PT – Dormente / Contradormente
- SP – Durmiente
- CT – Contubal
- FR – Serre bauquière
- IT – Corrente
- UK – Clamp
- NL –



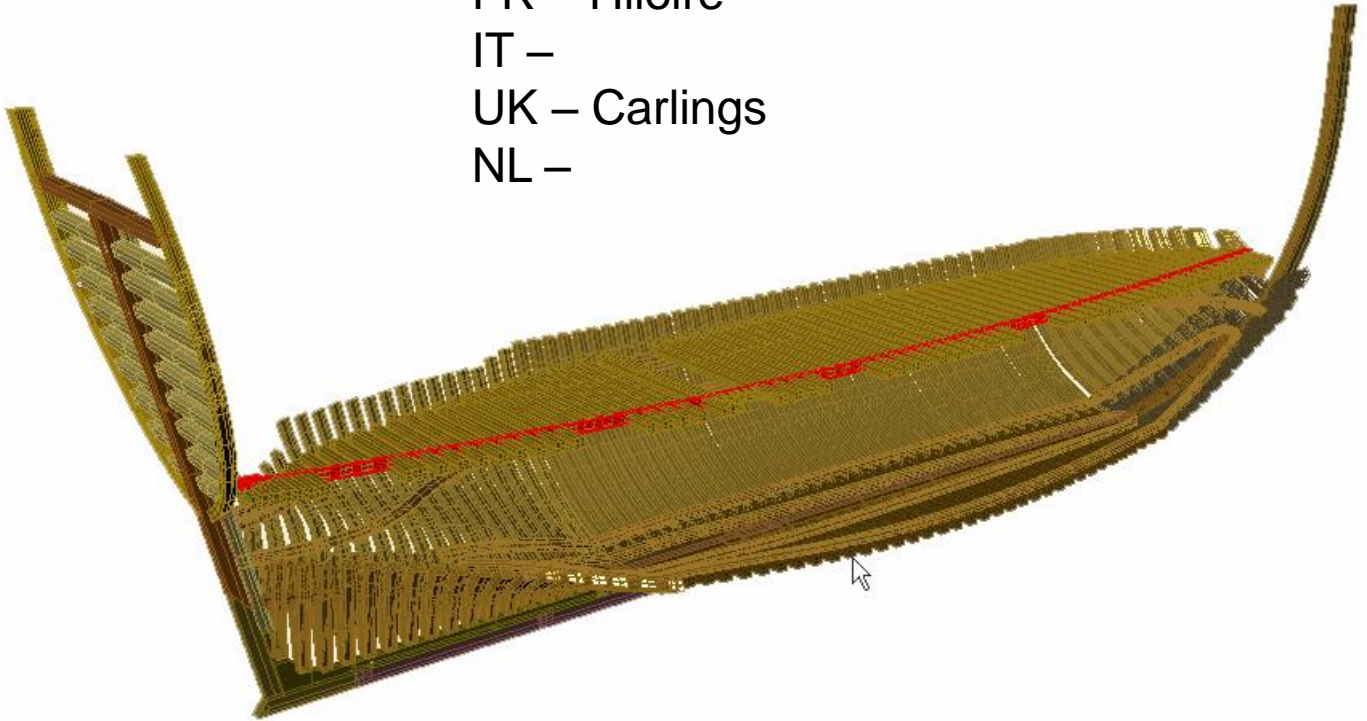
Deck beams

PT – Vaus, latas
SP – Baos, latas
CT – Llatas
FR – Baux
IT – Baglio, latta (Venice)
UK – Deck beams
NL –



Carlings

- PT – Cordas
- SP – Cuerdas
- CT –
- FR – Hiloire
- IT –
- UK – Carlings
- NL –



Stanchions

PT – Pés de carneiro

SP – Puntales

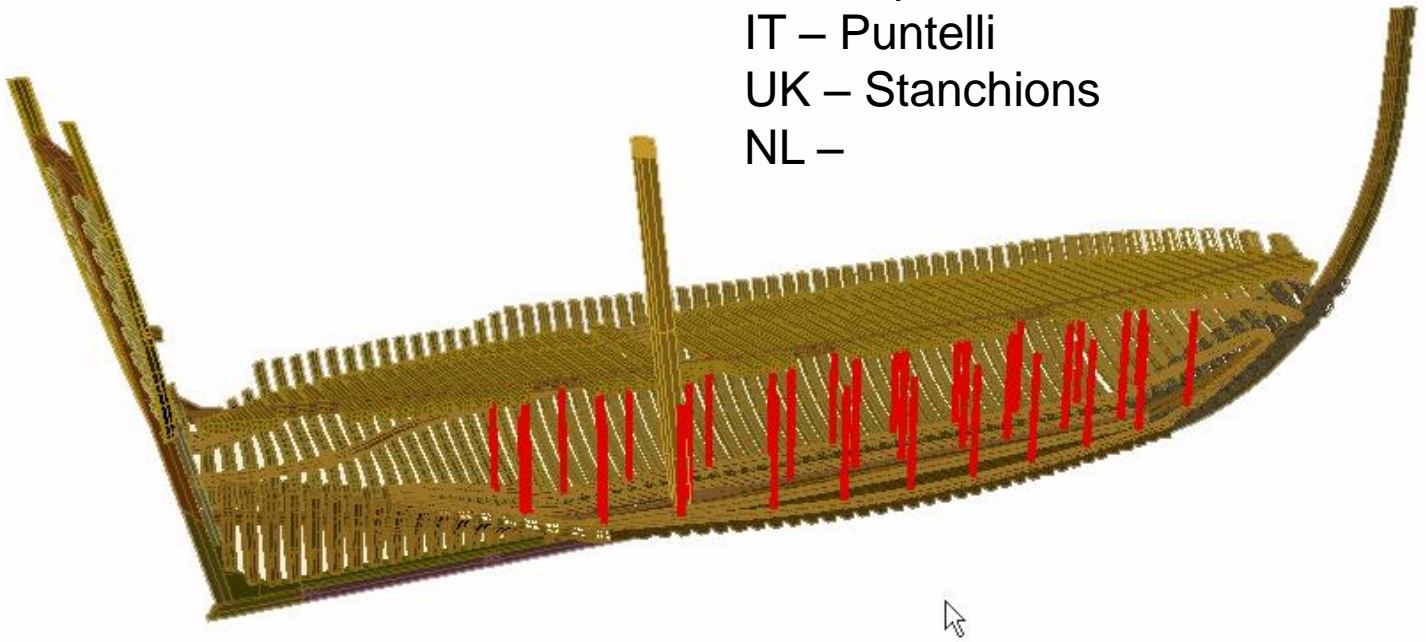
CT –

FR – Epontilles

IT – Puntelli

UK – Stanchions

NL –



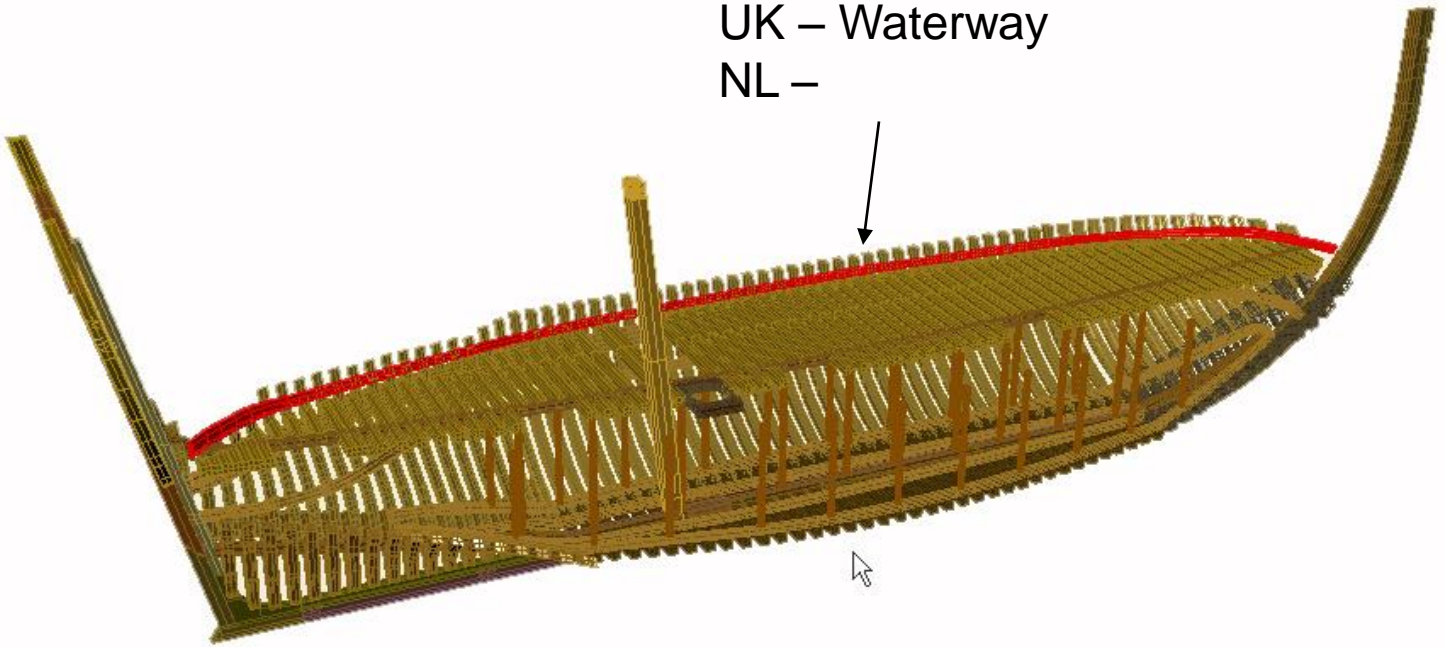
Mast partners



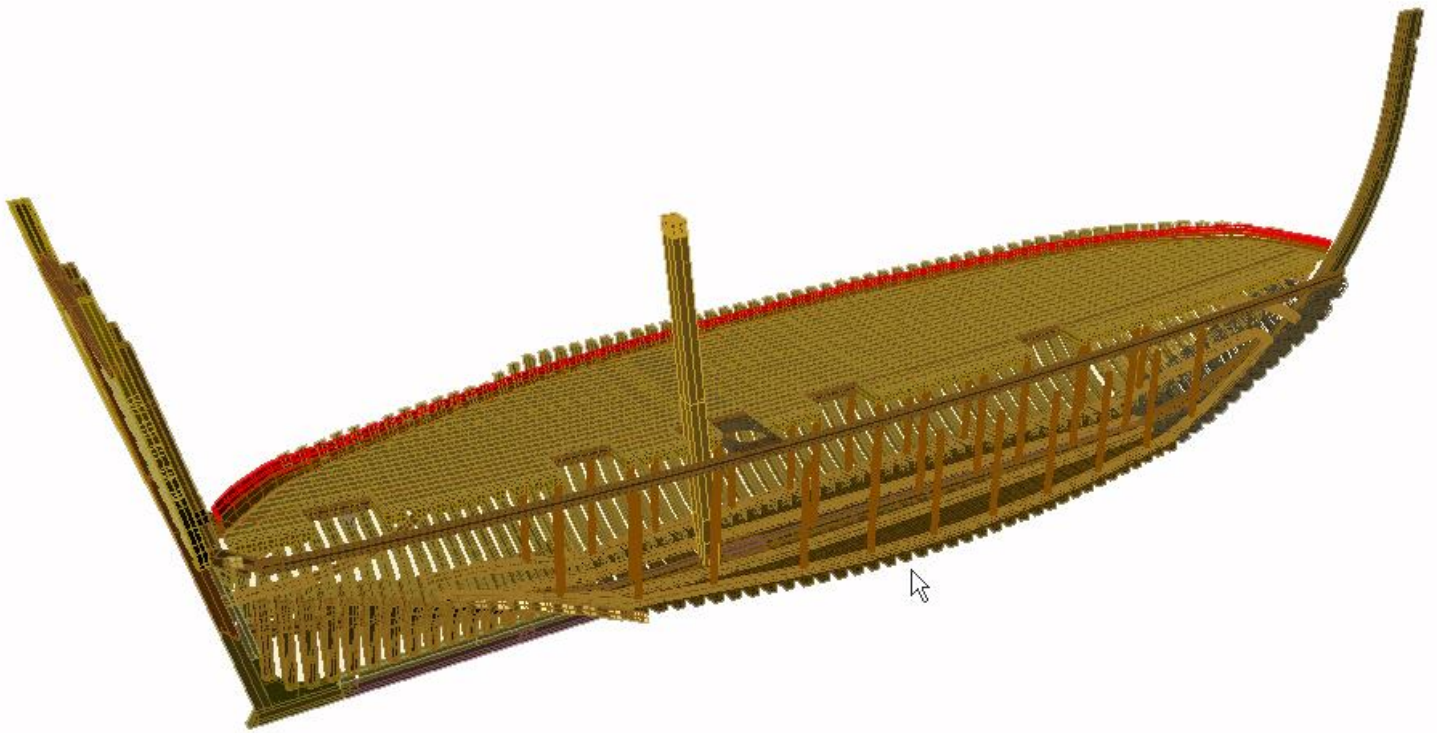
PT – Paixões dos tamboretas
SP – Tamboretas
CT –
FR – Étambrai
IT – Mastra
UK – Mast partners
NL –

Waterways

- PT – Trincaniz
- SP – Trancanil
- CT –
- FR – Gouttière
- IT –
- UK – Waterway
- NL –



Spirketing



- PT – Couceira
- SP –
- CT –
- FR – Virure
- IT –
- UK – Spirketing
- NL –

3D Model: Alex Hazlett

Deck knees

PT – Curvas de convés

SP – Corbatones

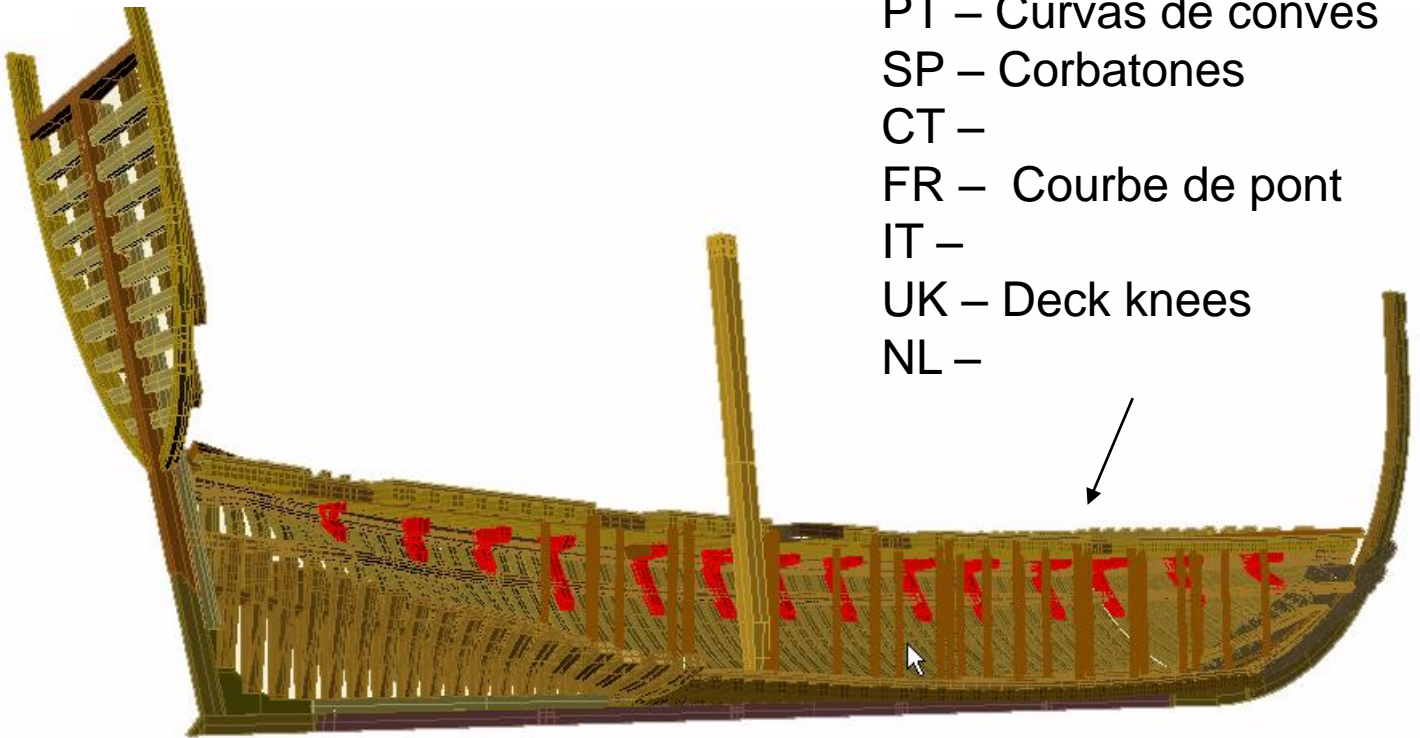
CT –

FR – Courbe de pont

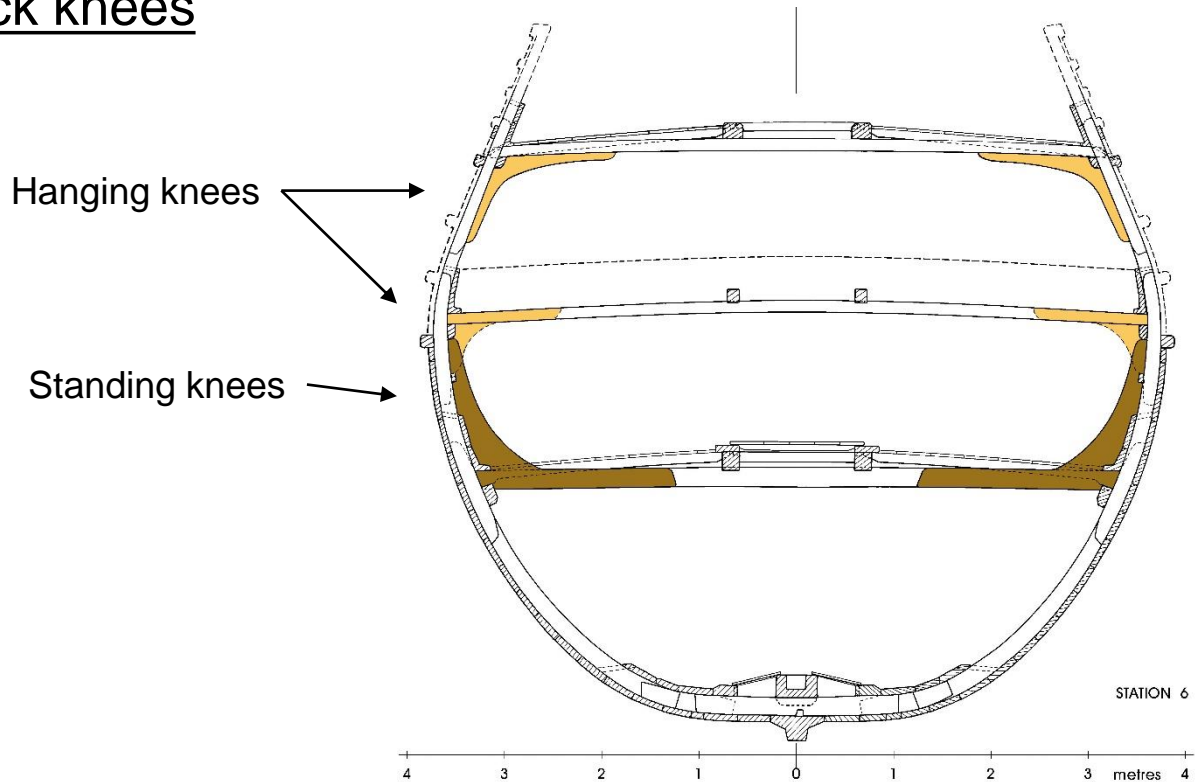
IT –

UK – Deck knees

NL –



Deck knees



PT – Curvas de revés (hanging) ; curvas de convés (standing) ; curvas de abertona (lodging)

SP –

CT –

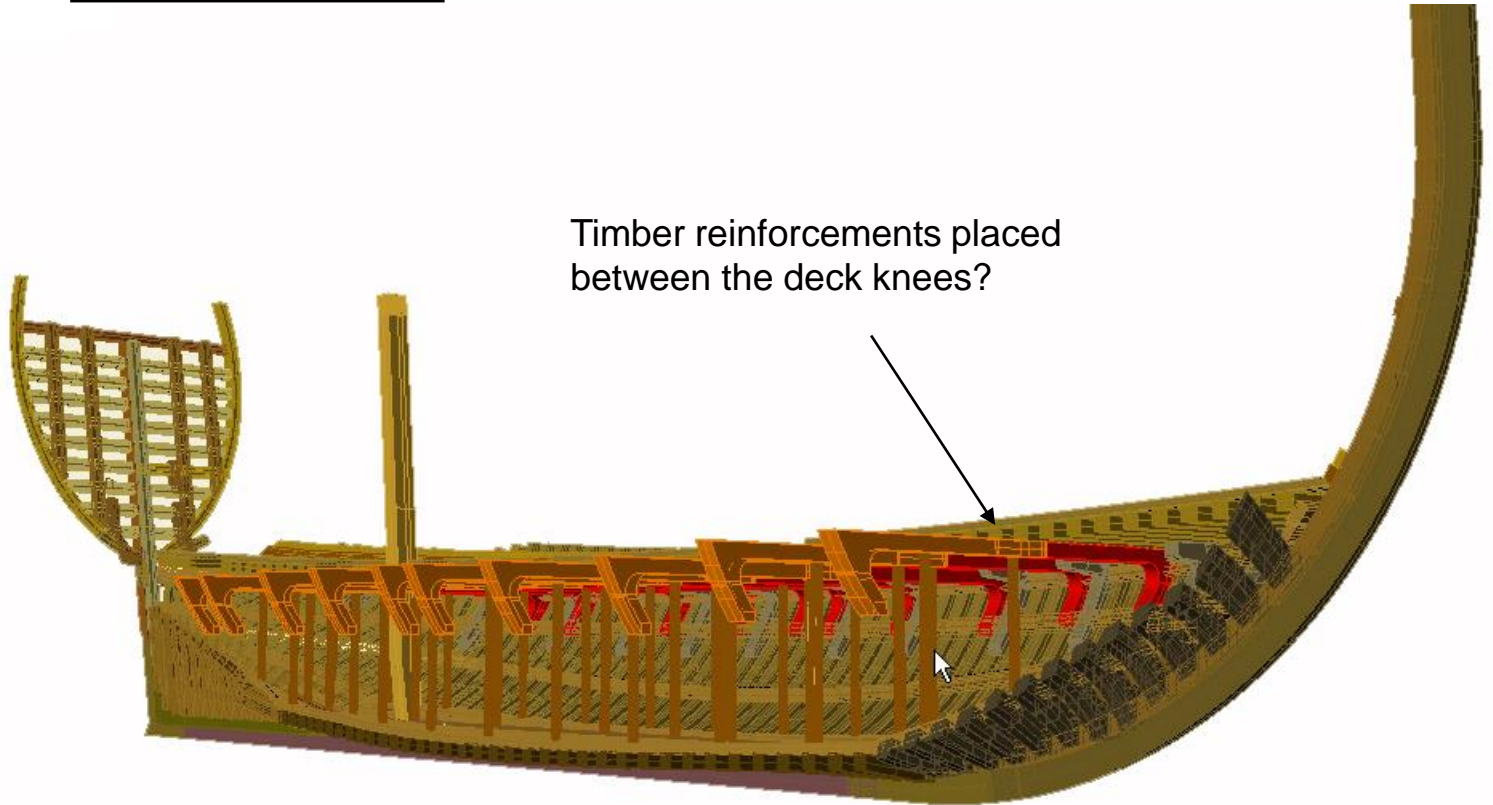
FR – Courbe verticale (hanging); courbe horizontale (lodging);

IT –

UK – Hanging knees; standing knees, lodging knees

NL –

Reinforcements



This word appears also in Lavanha, where it appears to designate timbers inserted between the floor timbers, making a solid bottom.

PT – Entremichas, antremichas?

SP –

CT –

FR –

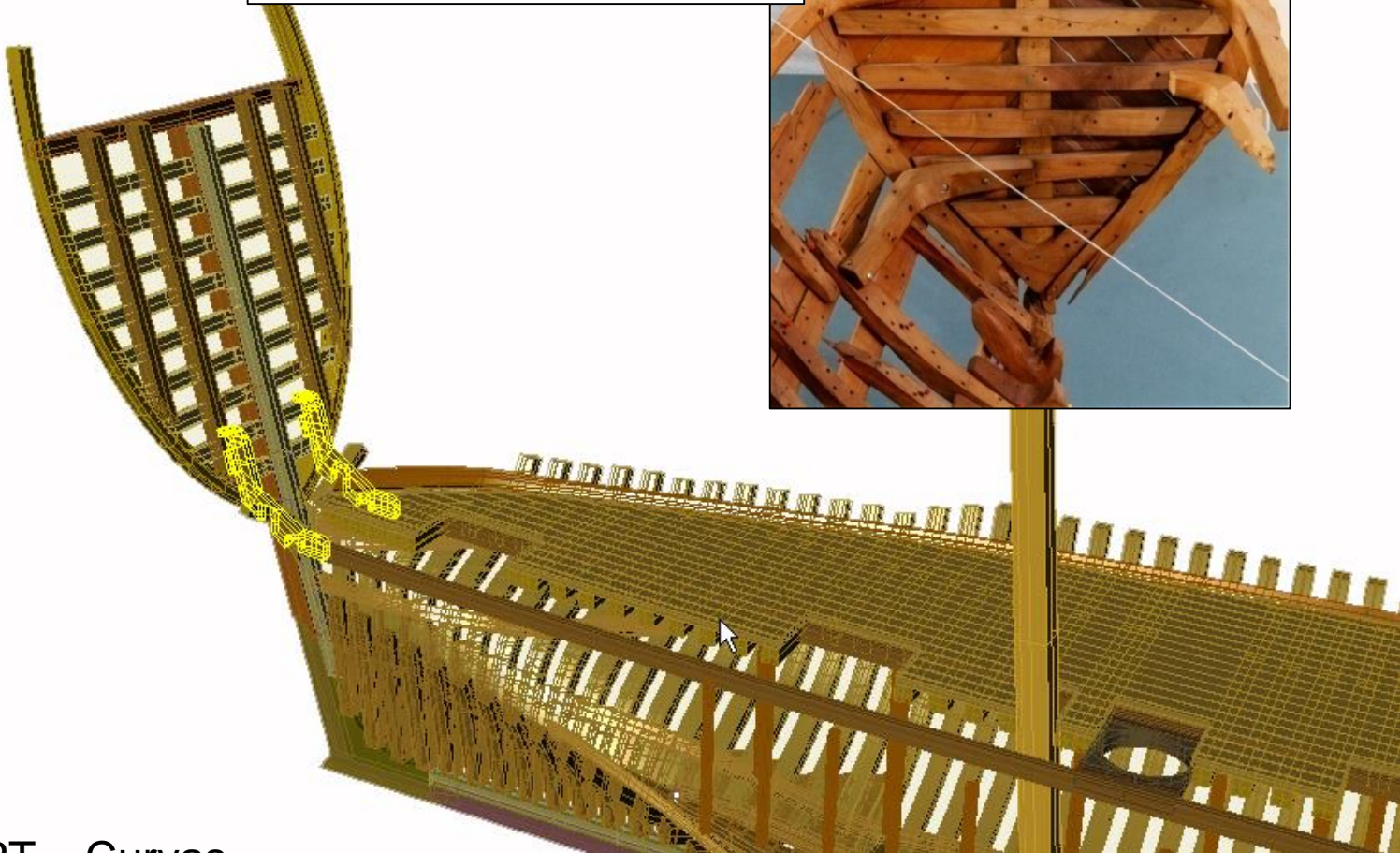
IT –

UK –

NL –

Reinforcements

In the Livro náutico contract the carlings are attached to the stern panel with knees. In the San Juan (1565) these knees attach the stringers to the stern panel instead.

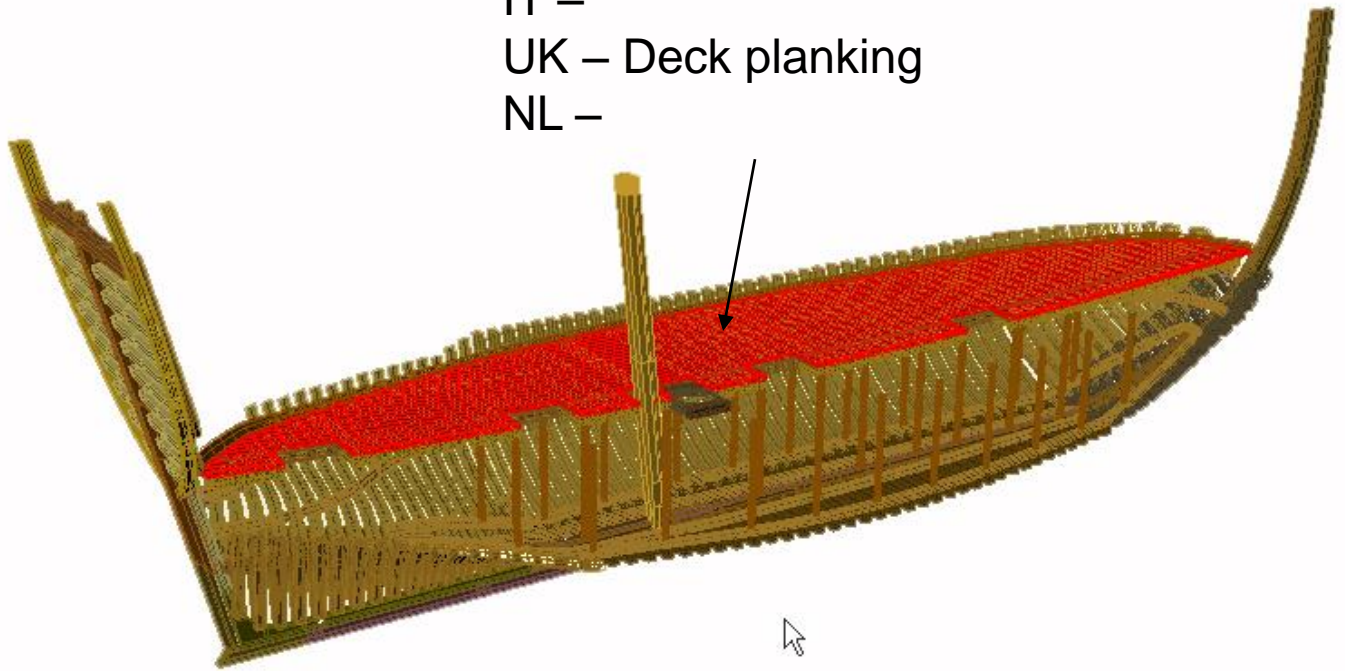


PT – Curvas
SP –
CT –
FR – Courbe d'écusson
IT –
UK –
NL –

3D Model: Alex Hazlett

Deck planking

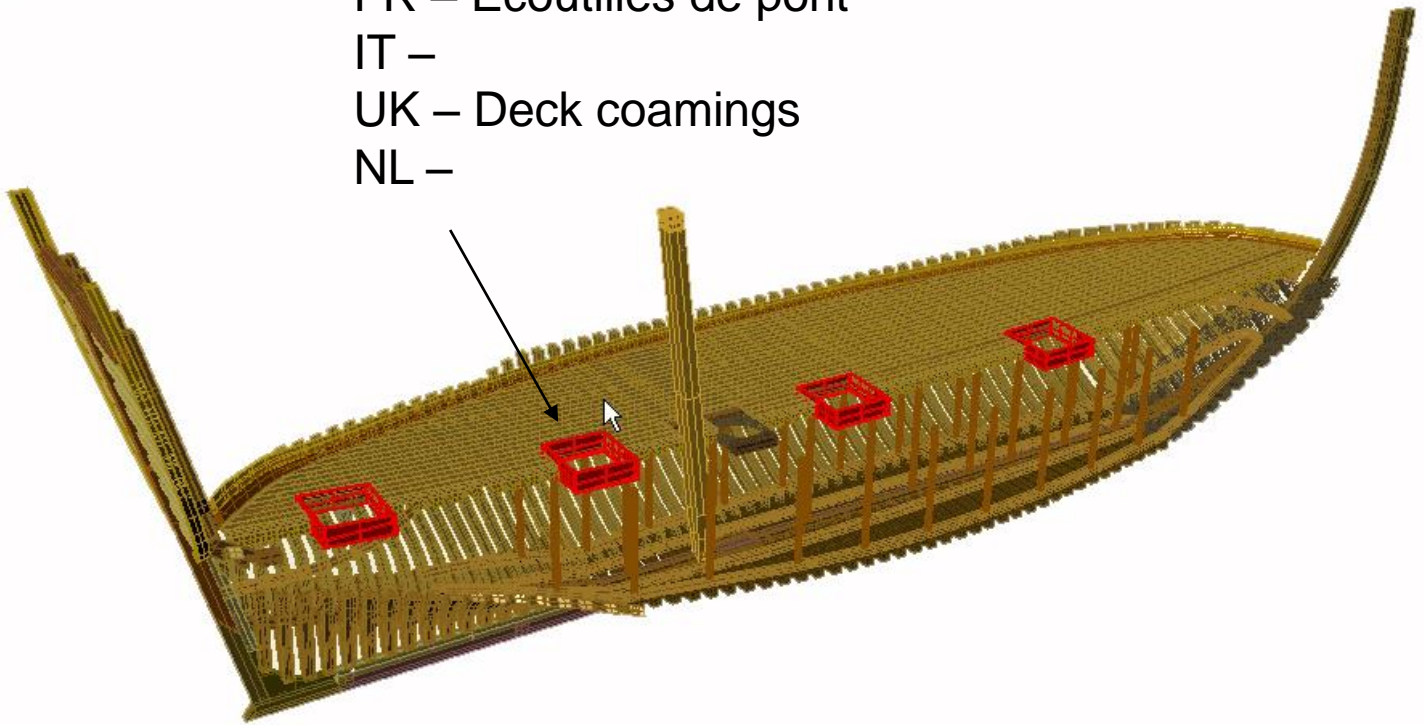
PT – Tabuado do convés
SP – Tablazón de la cubierta
CT –
FR – Plancher de pont
IT –
UK – Deck planking
NL –



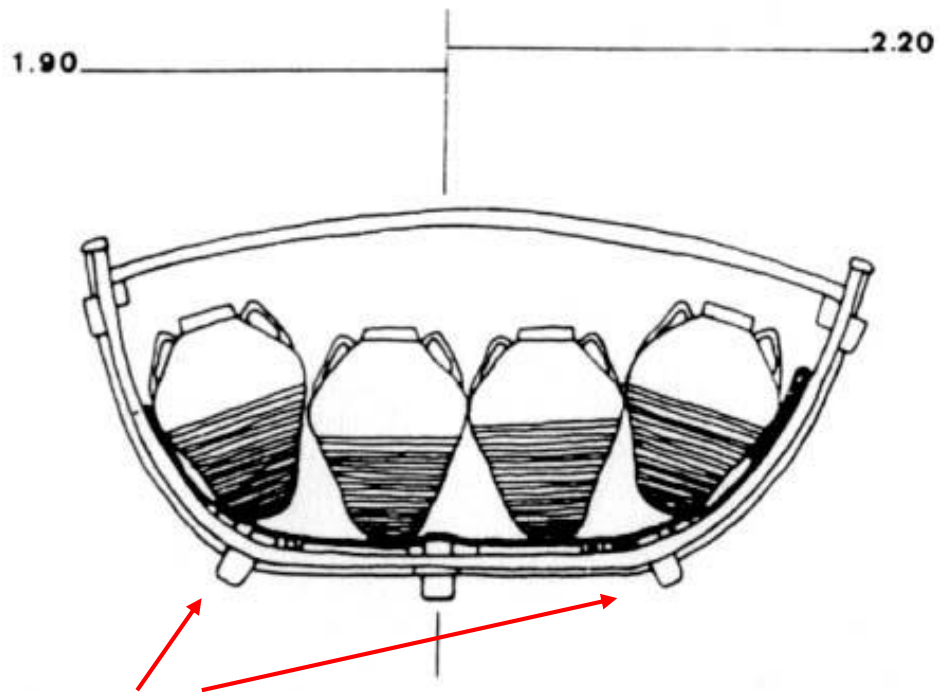
3D Model: Alex Hazlett

Hatch coamings

- PT – Madres das escotinhas
- SP – Brazola y barraganetes de la escotilla
- CT –
- FR – Écoutilles de pont
- IT –
- UK – Deck coamings
- NL –



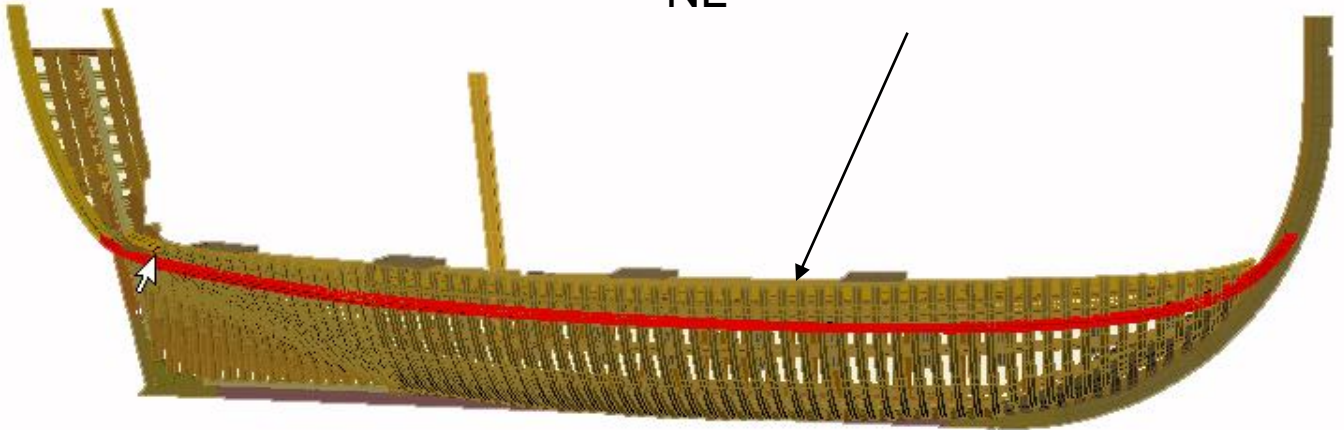
Side keel



- PT – Robaletes
- SP – Carenotes
- CT – Escuas
- FR – Quilles d'échouage
- IT – Scose
- UK – Side keels
- NL –

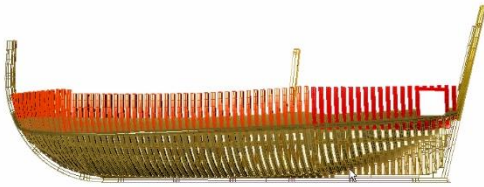
Lower wale

PT – Primeira cinta
SP – Primera cinta
CT –
FR – Préceinte basse
IT –
UK – Lower wale
NL –

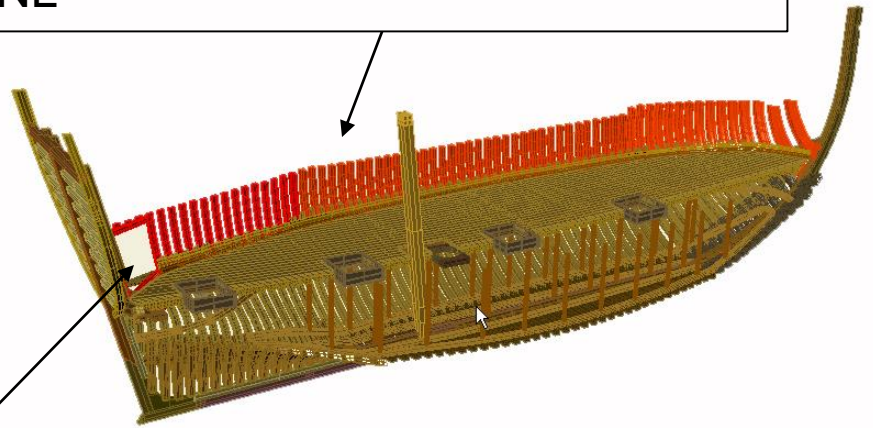


3D Model: Alex Hazlett

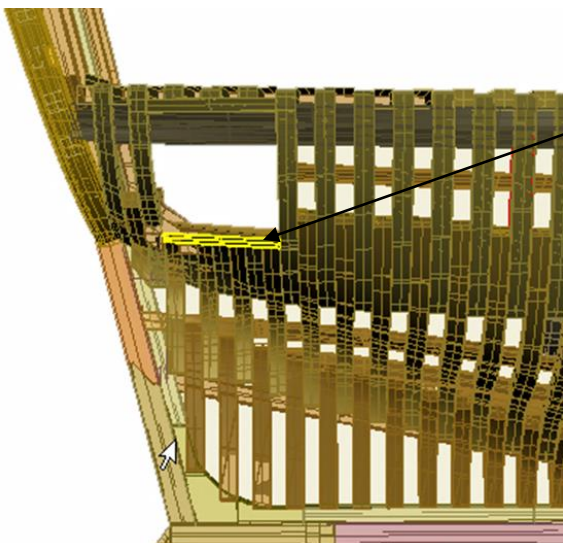
Second deck



PT – Segunda aposturagem
SP – Primera ligazón
CT –
FR – Première allonge
IT –
UK – Second futtocks
NL –



PT – Sisbordo, seisbordo
SP –
CT –
FR –
IT –
UK – Lateral hatch
NL –

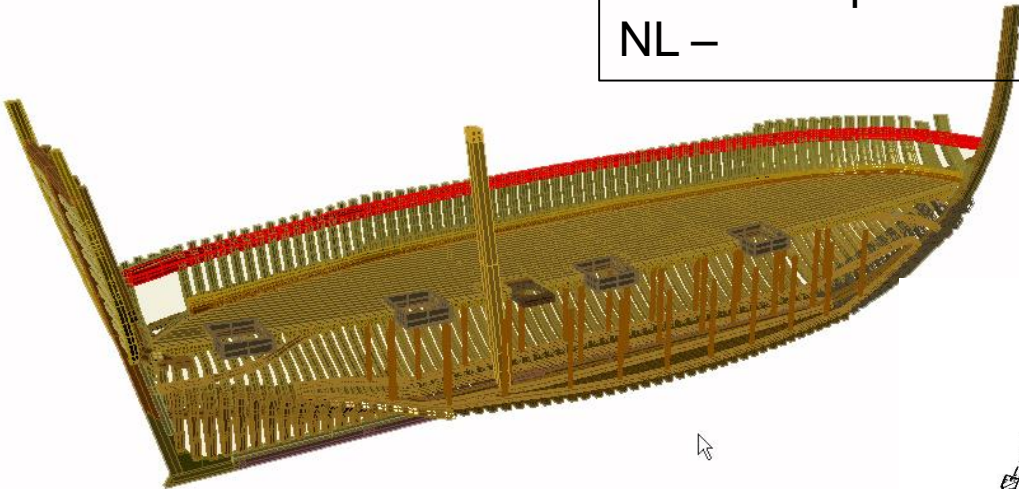


PT – Mesa do sisbordo
SP –
CT –
FR –
IT –
HR –
UK – Lateral hatch reinforcement
NL –

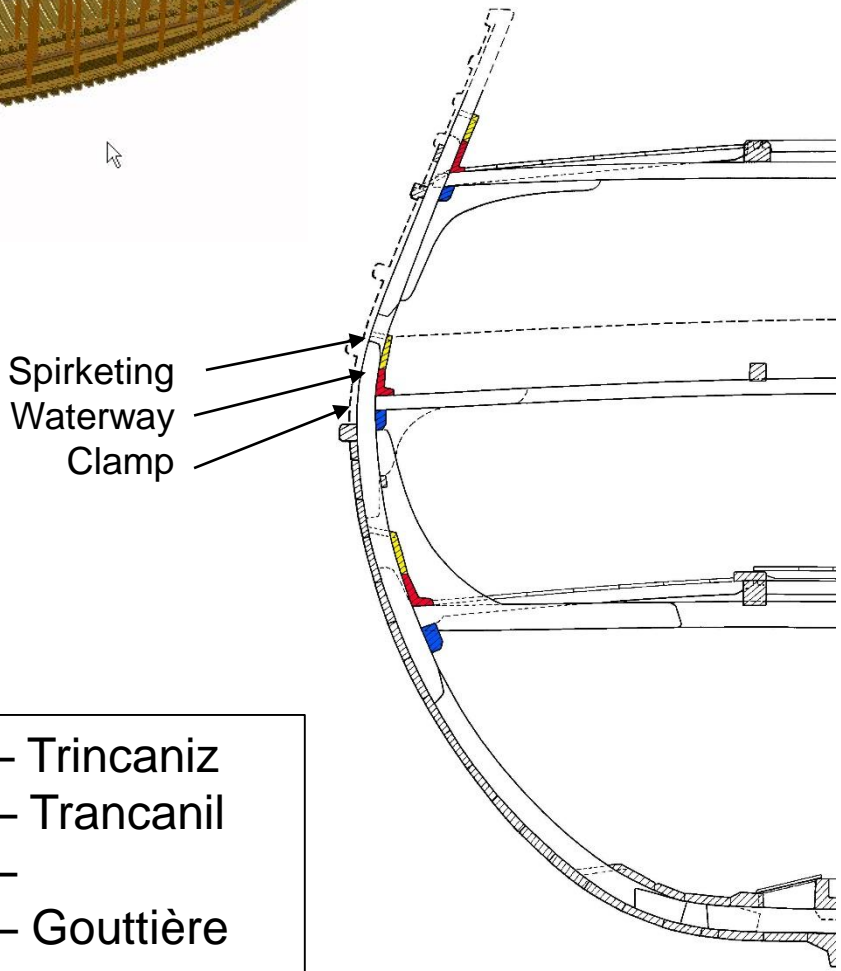
3D Model: Alex Hazlett

Second deck

- PT – Dormente (e contradormente)
- SP –
- CT –
- FR – Serre baucquiere
- IT –
- UK – Clamp
- NL –



- PT – Couceira
- SP –
- CT –
- FR – Virure
- IT –
- UK – Spirketing
- NL –

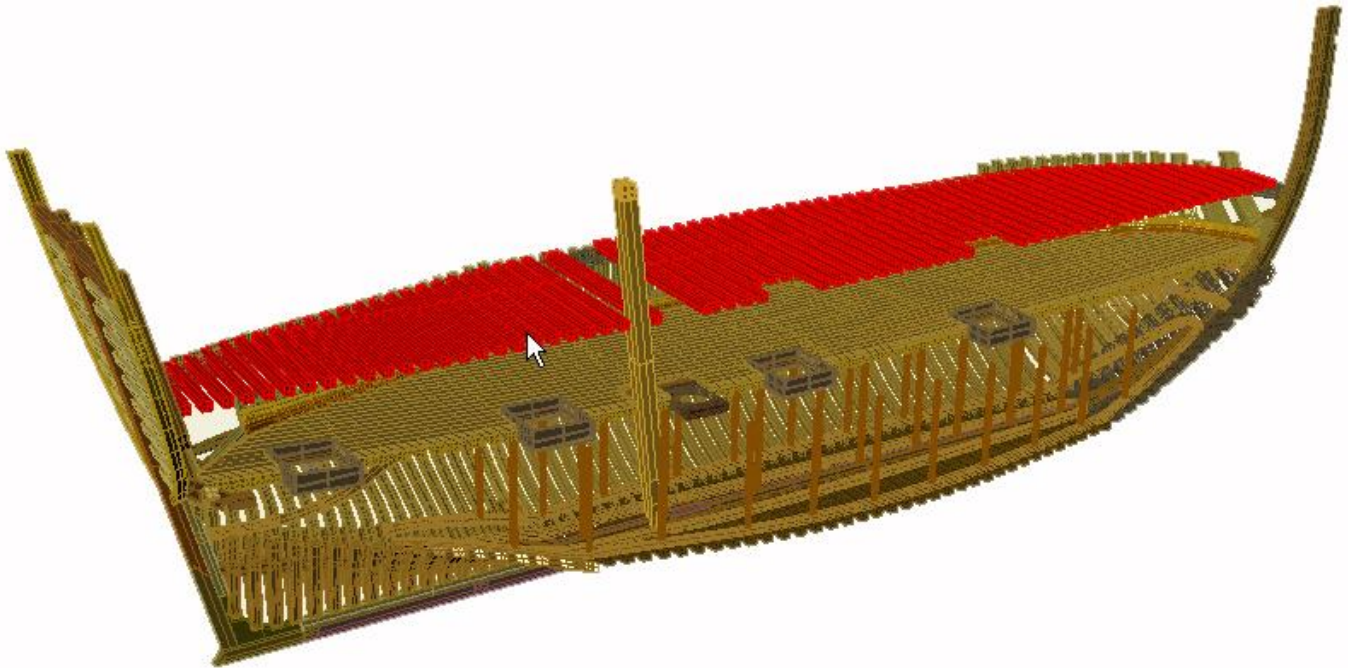


- PT – Trincaniz
- SP – Trancanil
- CT –
- FR – Gouttière
- IT –
- HR –
- UK – Waterway
- NL –

3D Model: Alex Hazlett

Second deck

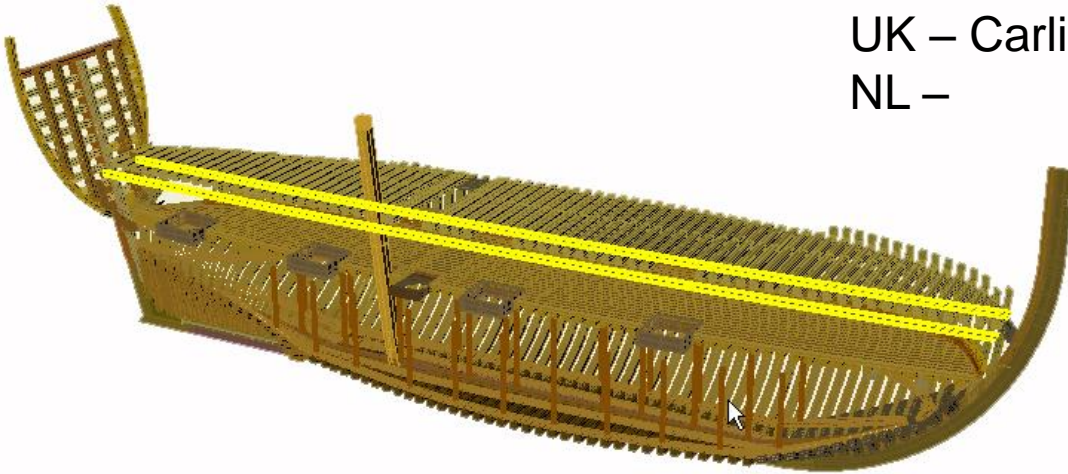
PT – Vaus
SP – Baos
CT –
FR – Bau
IT –
UK – Deck beams
NL –



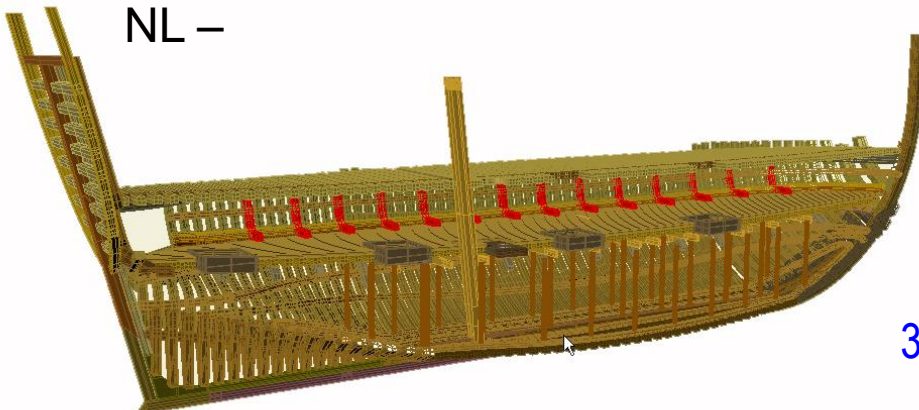
In several texts deck beams are doubled and sometimes quadrupled near hatches of mast openings.

Carlings of the second deck

PT – Cordas
SP –
CT –
FR – Traversin
IT –
HR –
UK – Carlings
NL –



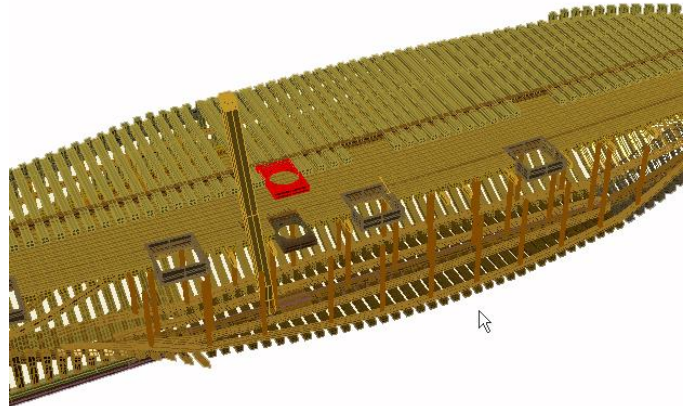
PT – Curvas de revés
SP –
CT –
FR – Courbes
IT –
HR –
UK – Standing knees
NL –



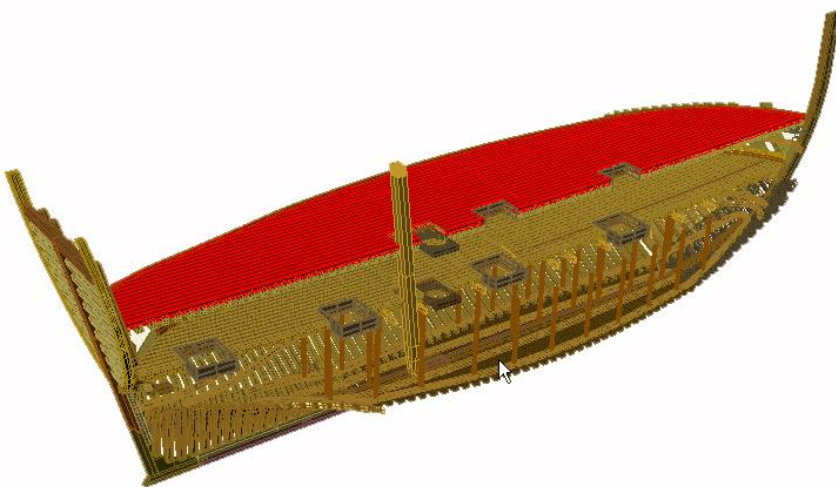
3D Model: Alex Hazlett

Second deck

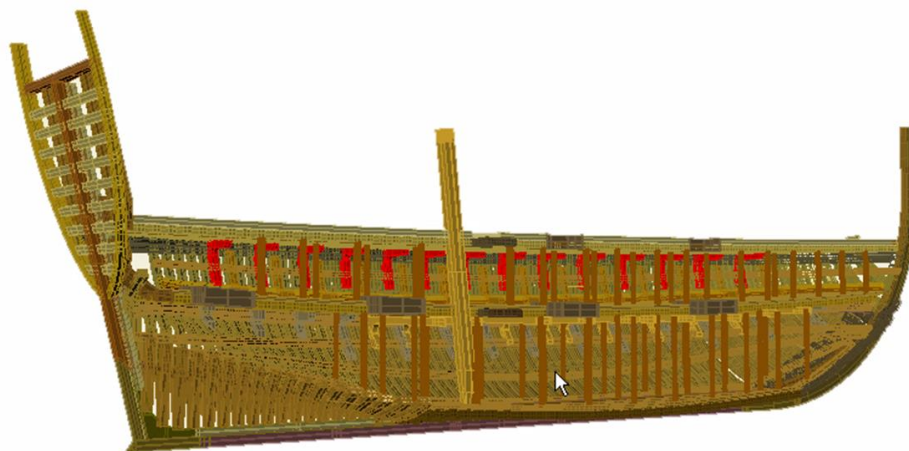
PT – Paixões dos tamboretas
SP – Tamboretas
CT –
FR – Étambrai
IT –
UK – Mast partners
NL –



PT – Tabuado da segunda coberta
SP – Tablazon de la segunda cubierta
CT –
FR – Plancher du second pont
IT –
UK – Second deck planking
NL –

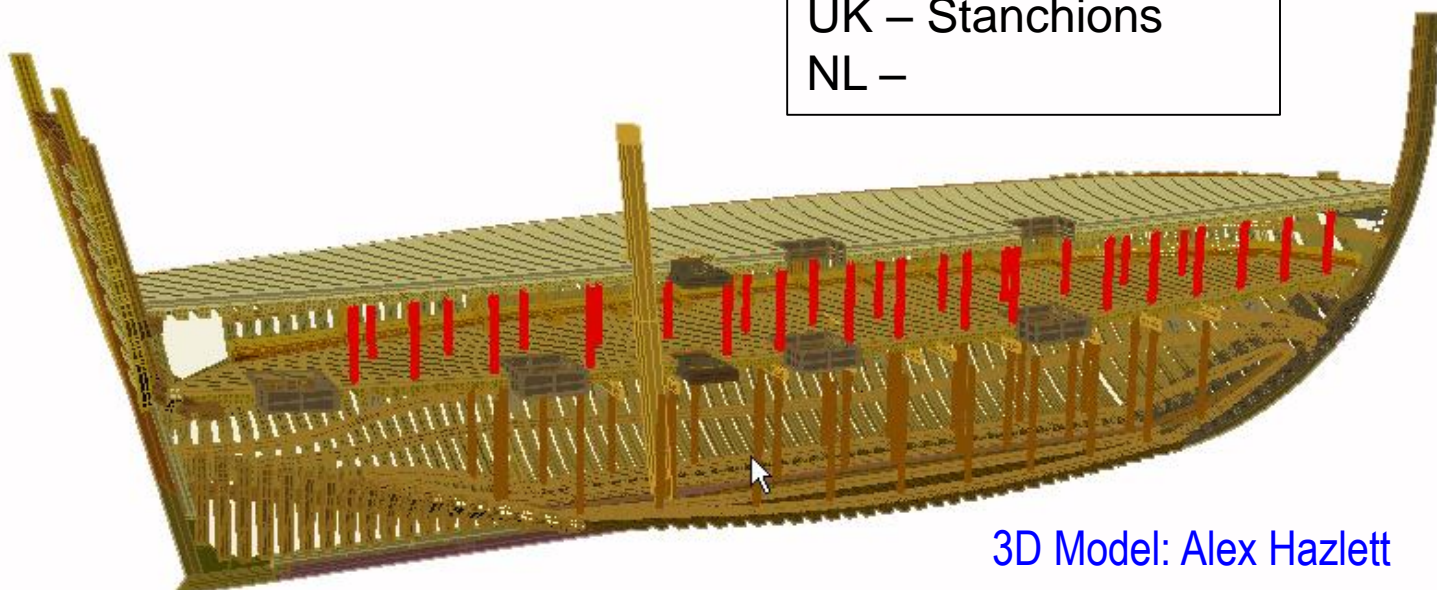


Second deck



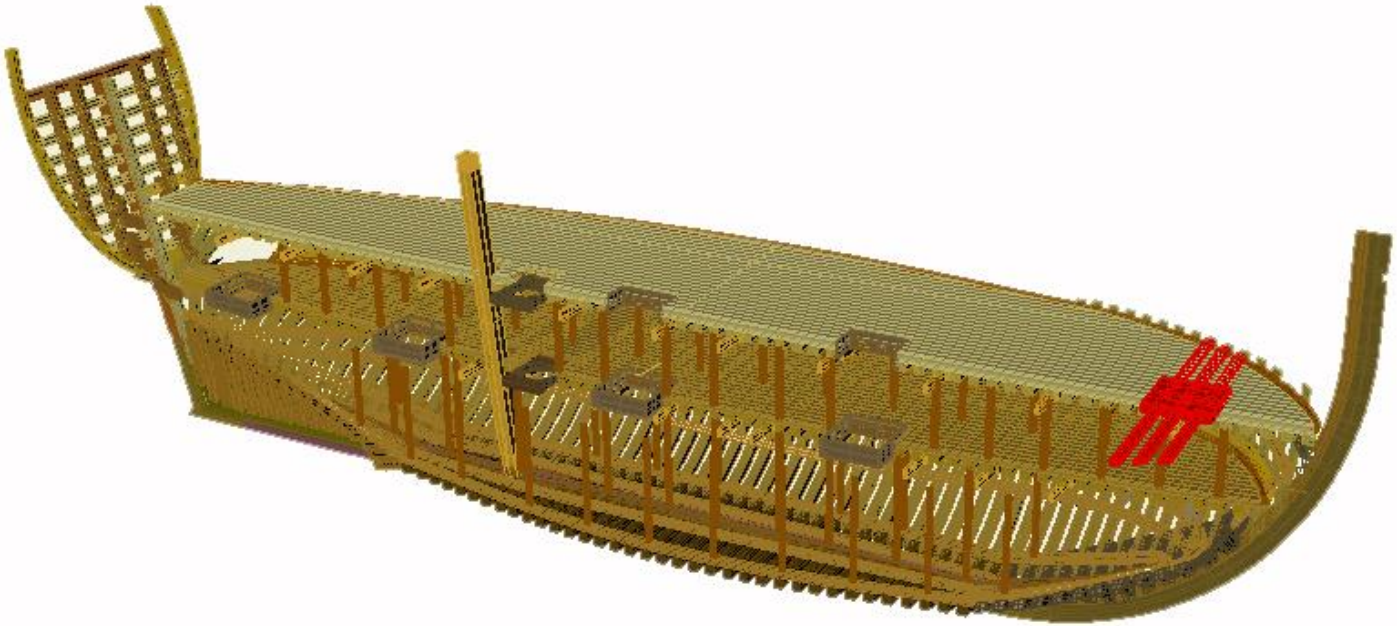
PT – Curvas de convés
SP – Corbatones
CT –
FR – Courbe de pont
IT –
UK – Deck knees
NL –

PT – Pés de carneiro
SP – Puntales
CT –
FR – Épontille
IT –
HR –
UK – Stanchions
NL –



3D Model: Alex Hazlett

Fore maststep

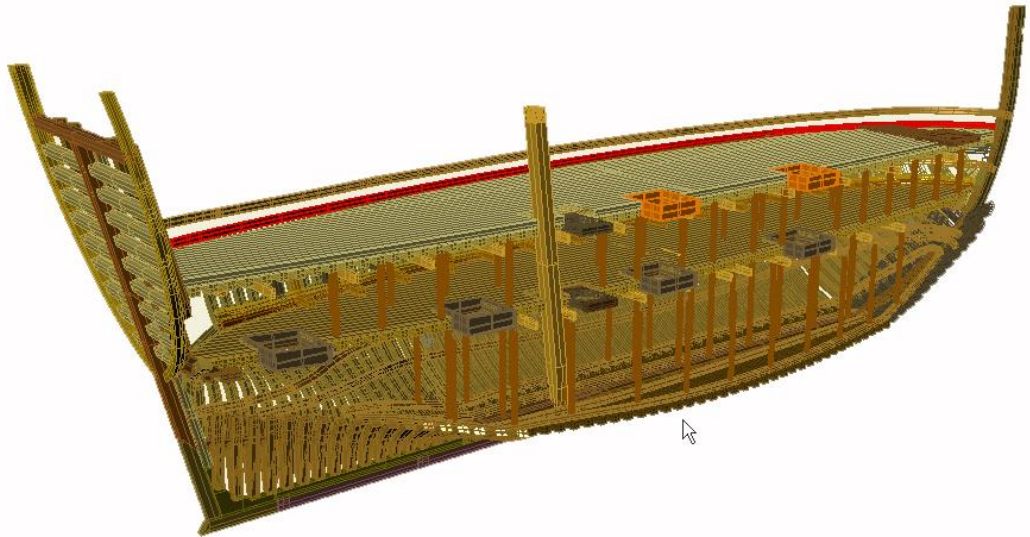


Fore maststep. *San Juan, 1565.*



- PT – Carlinga e cunhos
- SP –
- CT –
- FR – Emplature du mât de misaine
- IT –
- UK –
- NL –

Hatch coamings



PT – Madres das escotilhas

SP –

CT –

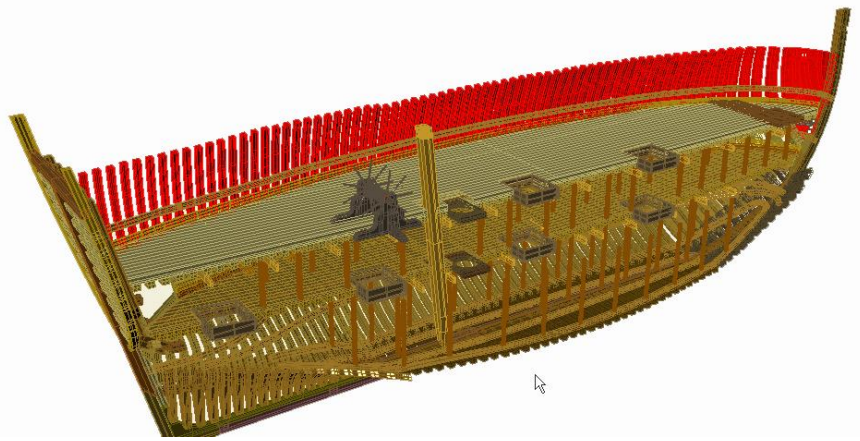
FR – Hiloire

IT –

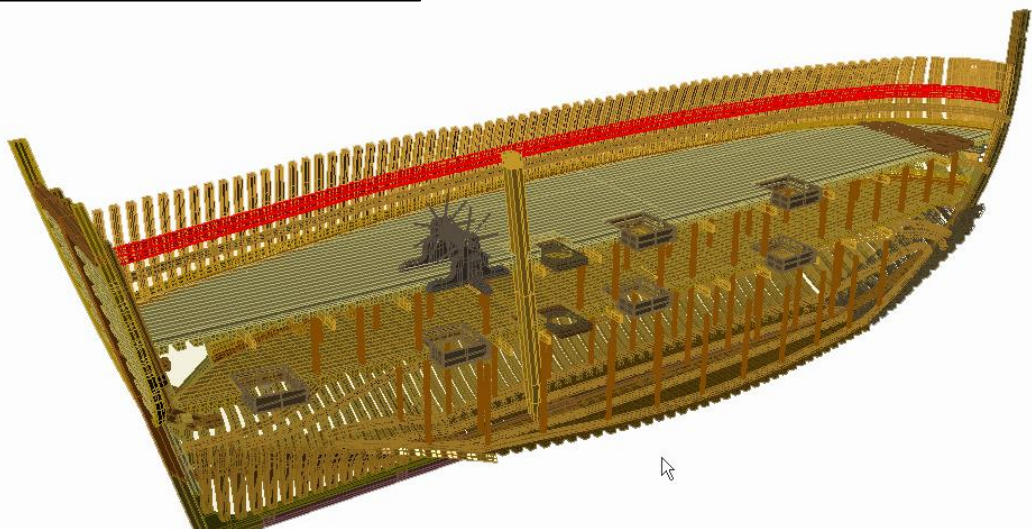
UK –

NL –

Third deck



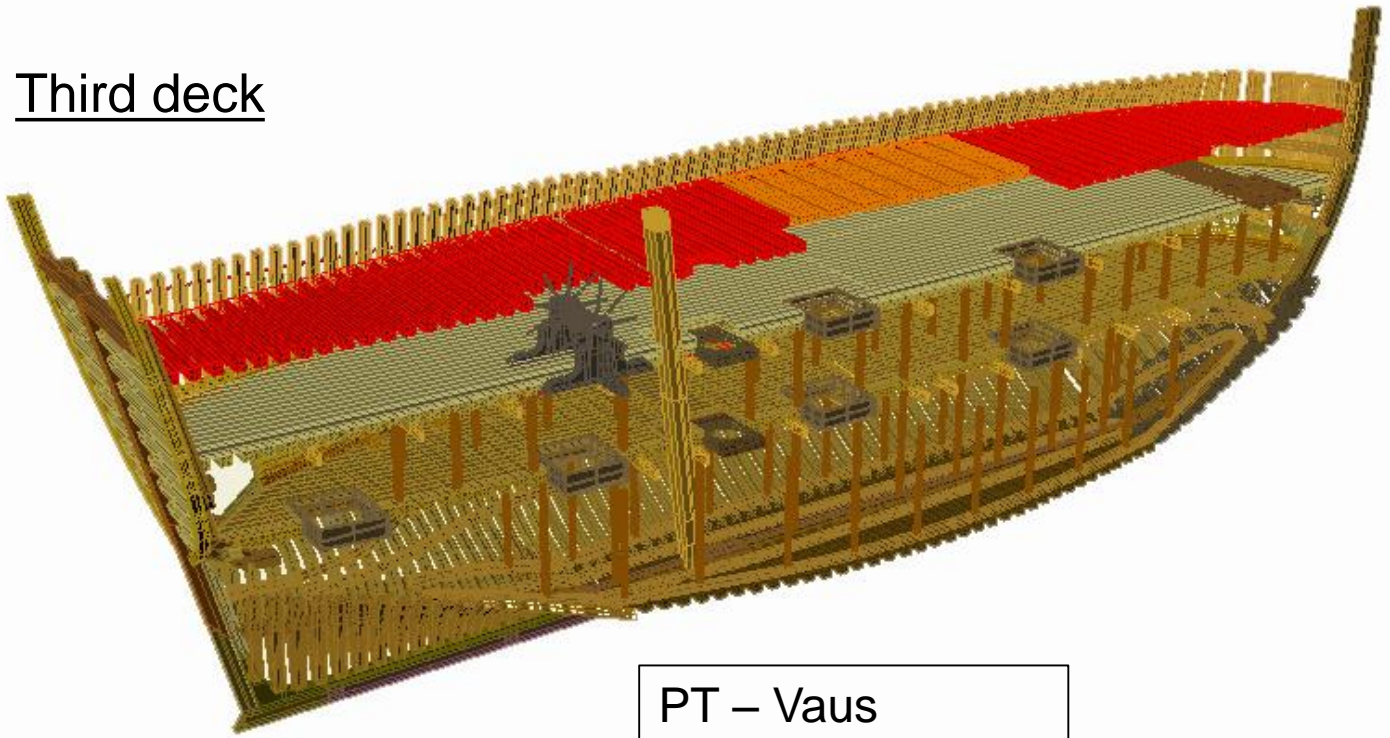
PT – Terceira aposturagem
SP – Segunda ligazón
CT –
FR – Seconde allonge
IT –
UK – Third futtocks
NL –



PT – Dormente (e contradormente)
SP –
CT –
FR – serre-bauqièrre
IT –
UK – Clamp
NL –

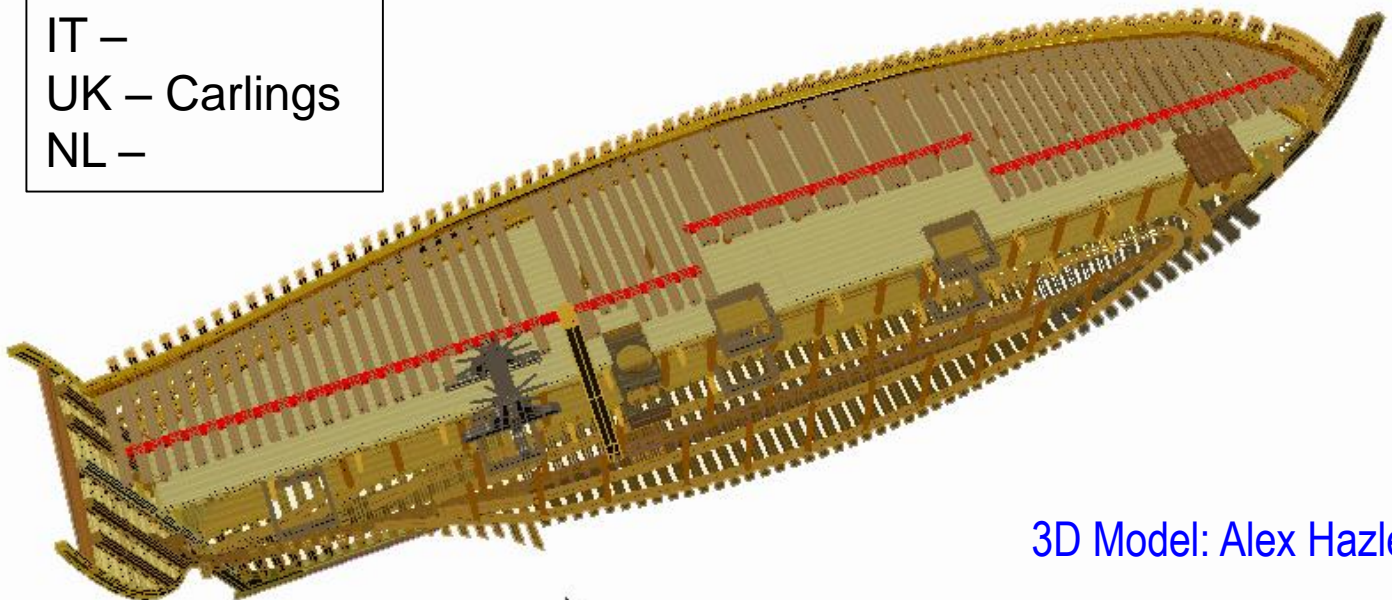
3D Model: Alex Hazlett

Third deck



PT – Vaus
SP – Baos
CT –
FR – Bau
IT –
UK – Deck beams
NL –

PT – Cordas
SP – Cuerdas
CT –
FR – Traversin
IT –
UK – Carlings
NL –



3D Model: Alex Hazlett

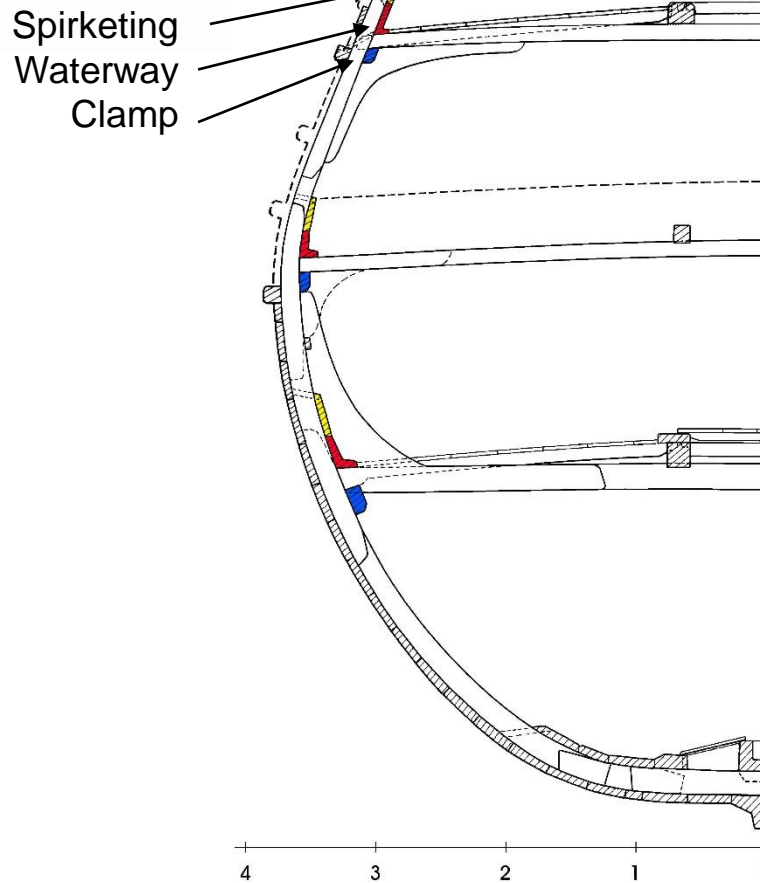
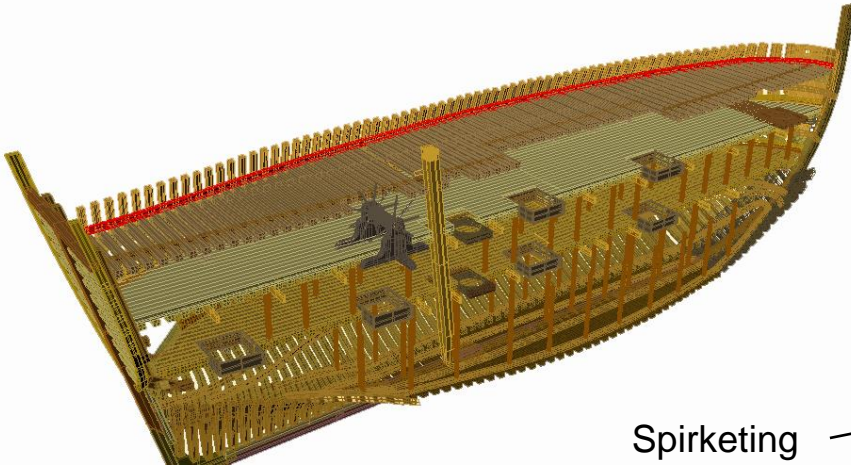
Third deck



PT – Curvas
SP – Corbatones
CT –
FR – Courbes de pont
IT –
UK – Standing knees
NL –

Third deck

- PT – Dormente (e contradormente)
- SP –
- CT –
- FR – Serre-bauquiere
- IT –
- UK – Clamp
- NL –

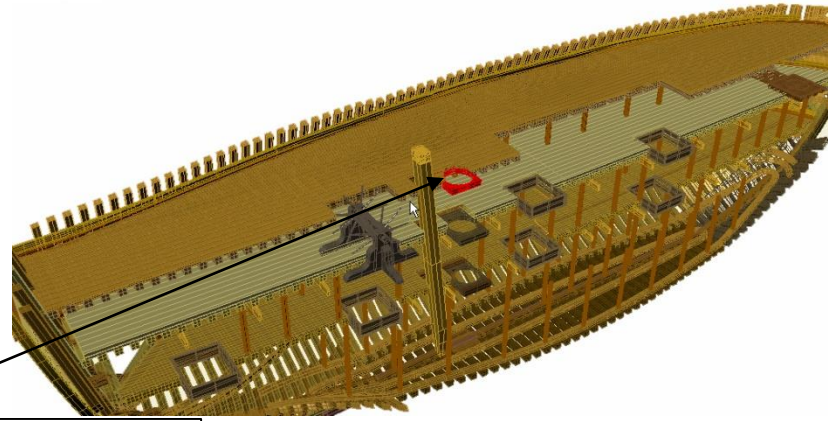


- PT – Couceira
- SP –
- CT –
- FR – Virure
- IT –
- UK – Spirketing
- NL –

- PT – Trincaniz
- SP – Trancanil
- CT –
- FR – Gouttière
- IT –
- UK – Waterway
- NL –

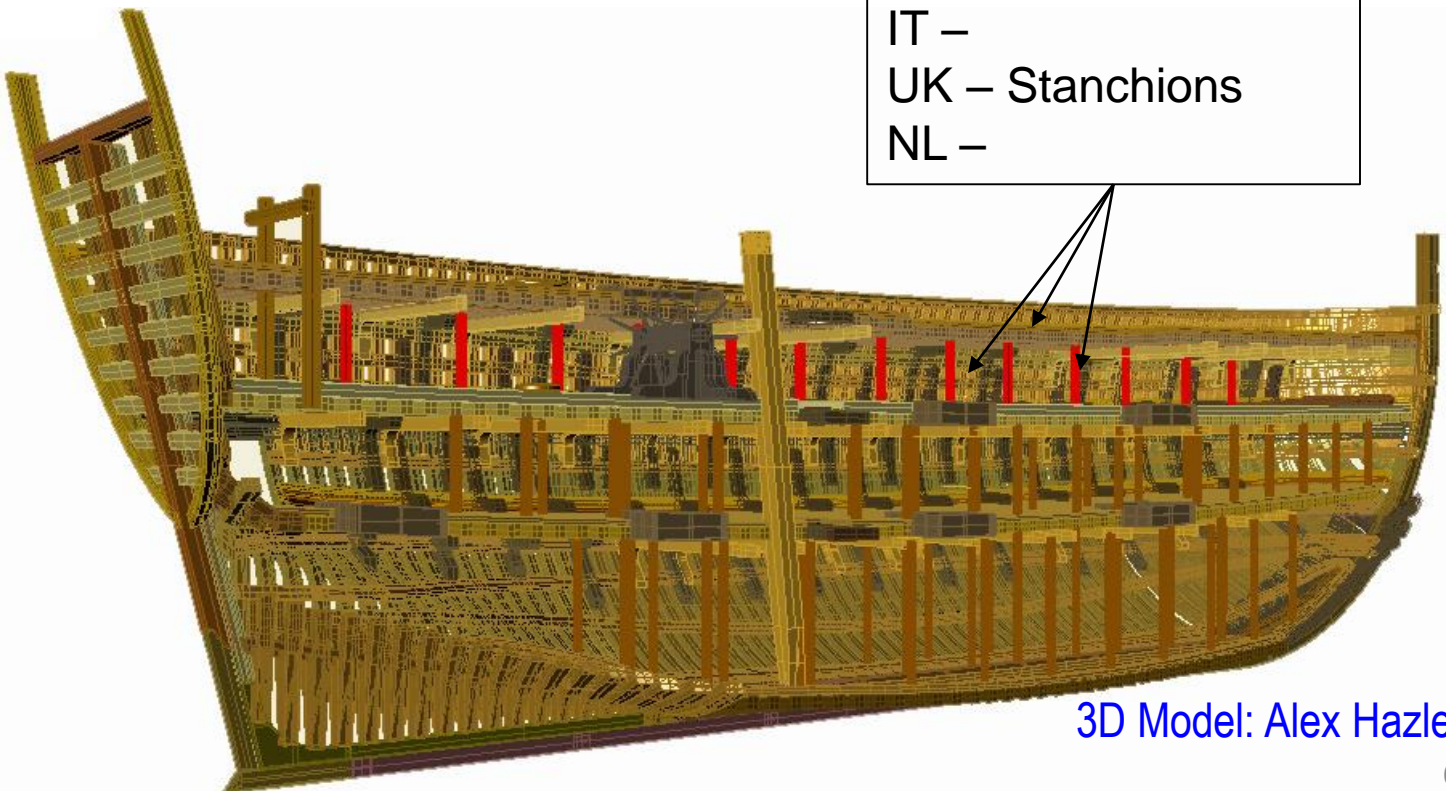
3D Model: Alex Hazlett

Third deck



PT – Paixões dos tamboretas
SP – Tamboretas
CT –
FR – Étambrai
IT –
UK – Mast partners
NL –

PT – Pés de carneiro
SP – Puntales
CT –
FR – Épontille
IT –
UK – Stanchions
NL –



3D Model: Alex Hazlett

Third deck

PT – Berço

SP –

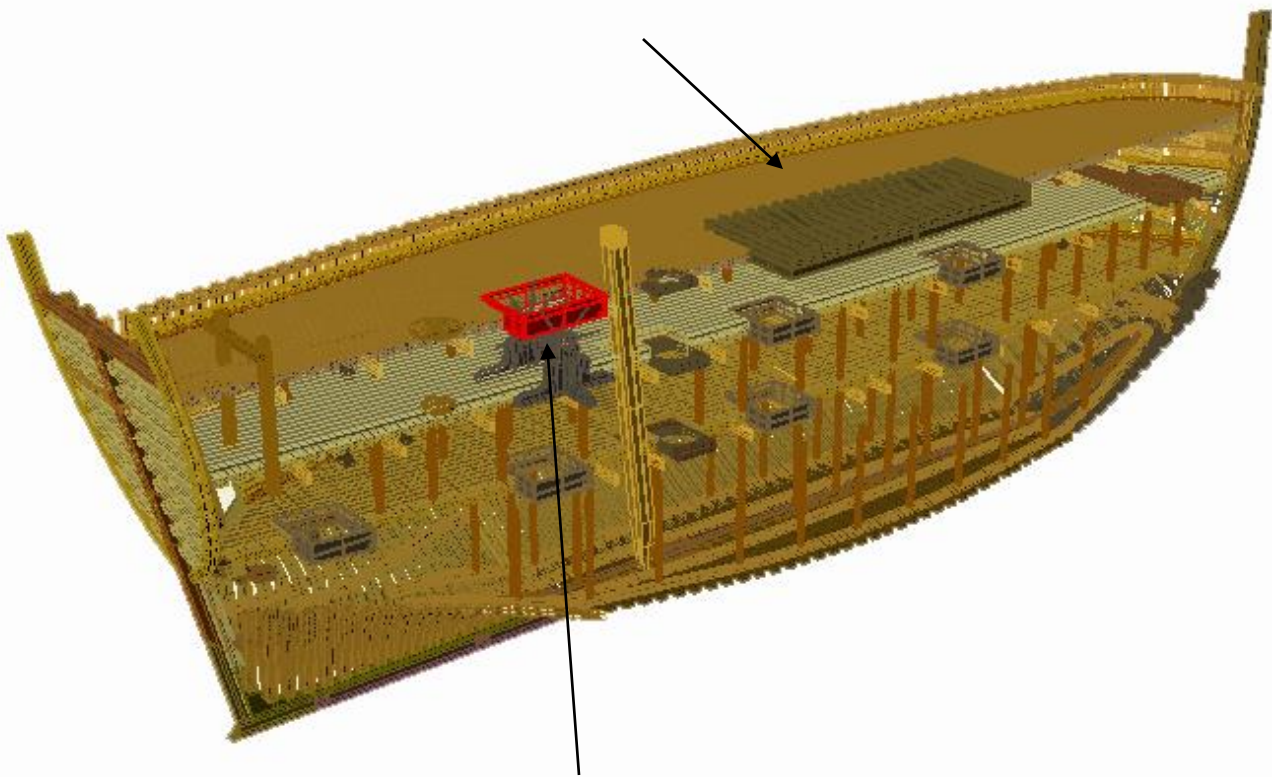
CT –

FR –

IT –

UK –

NL –



PT – Madres das escotilhas

SP –

CT –

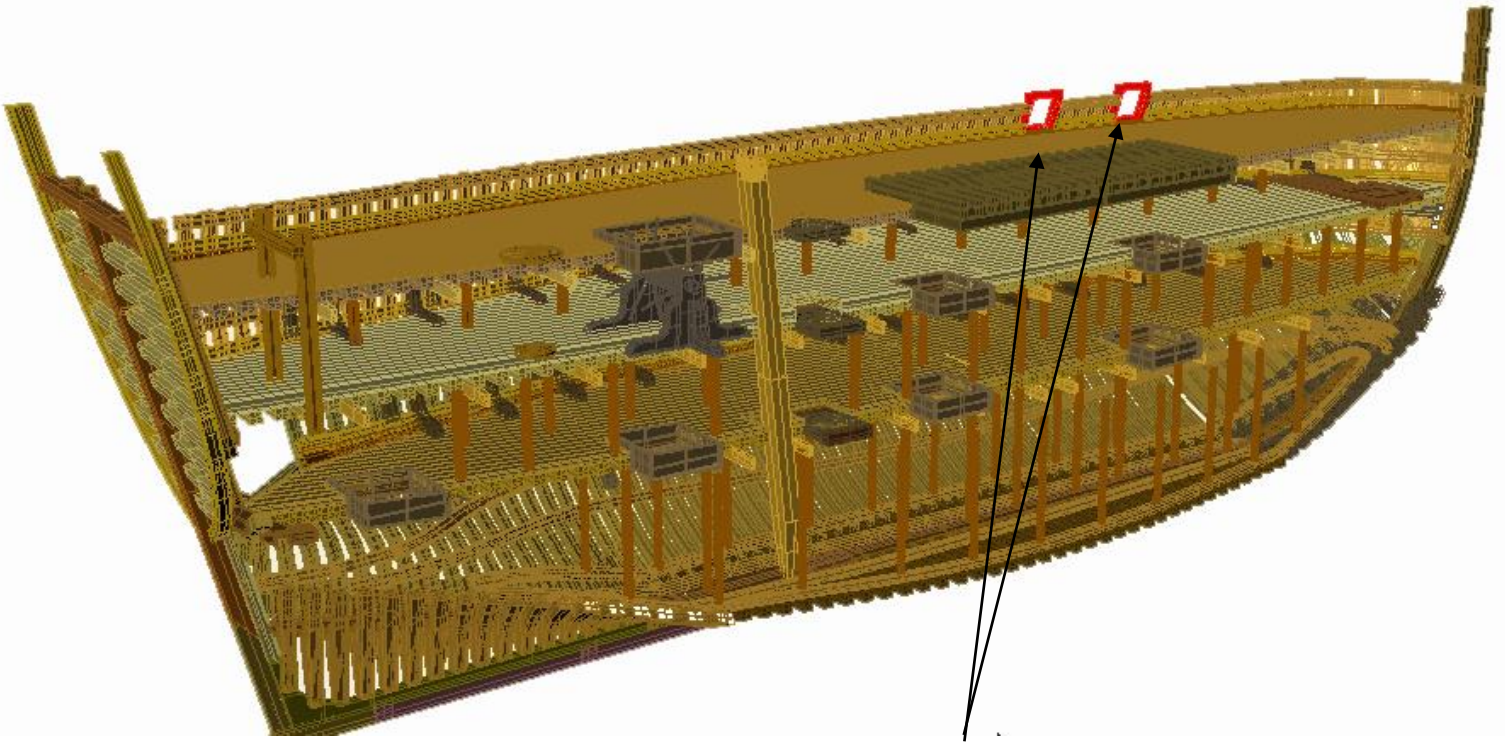
FR –

IT –

UK –

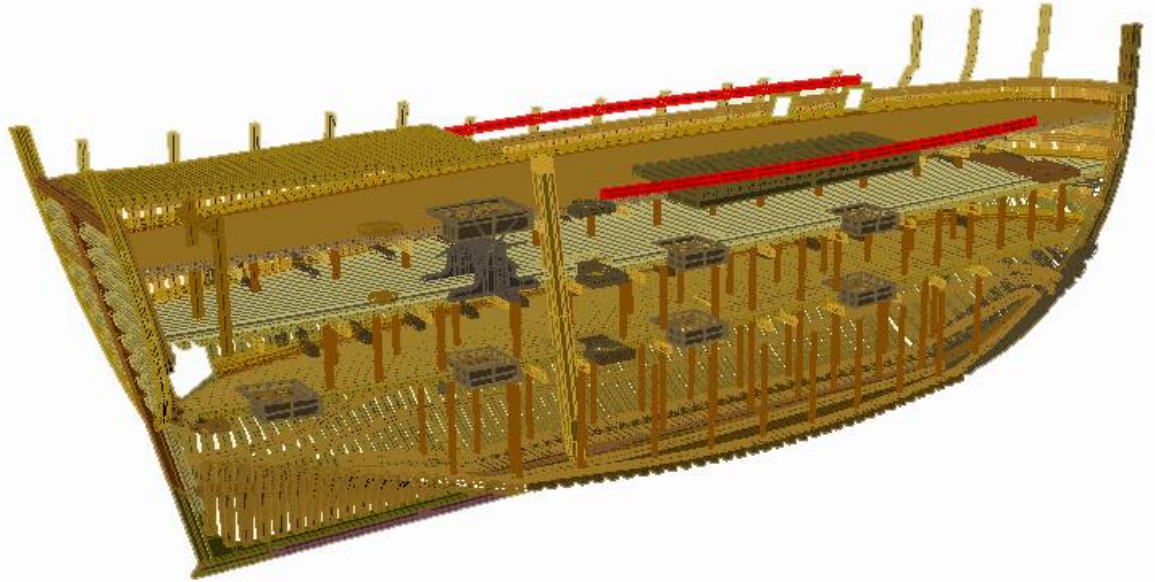
NL –

Third deck

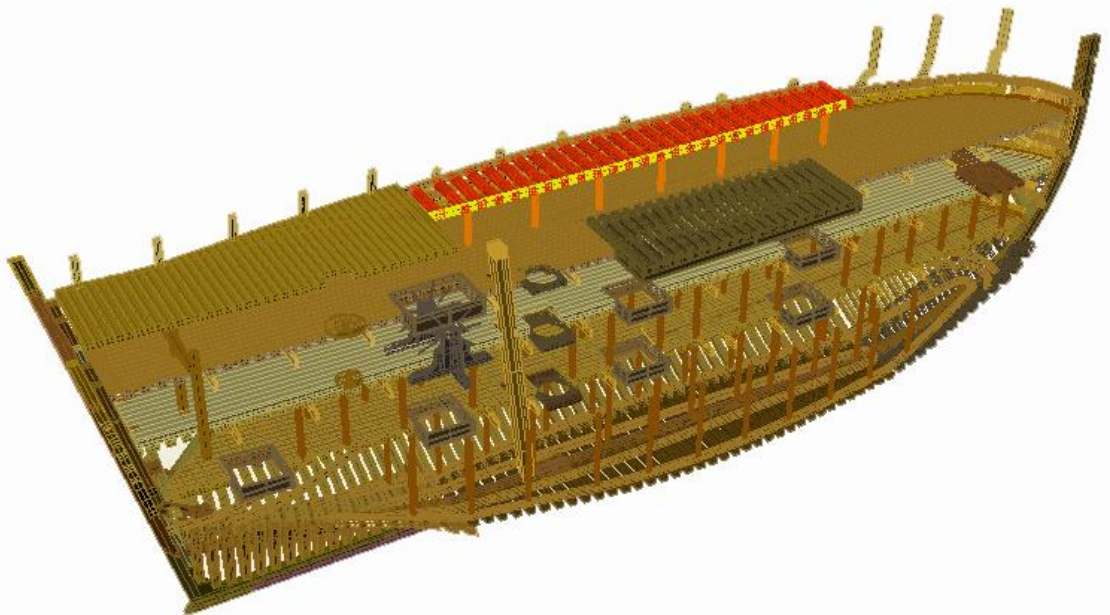


PT – Portinhola
SP – Portañola, cañonera, tronera
CT –
FR – Sabord
IT –
UK – gun port
NL –

Weather deck



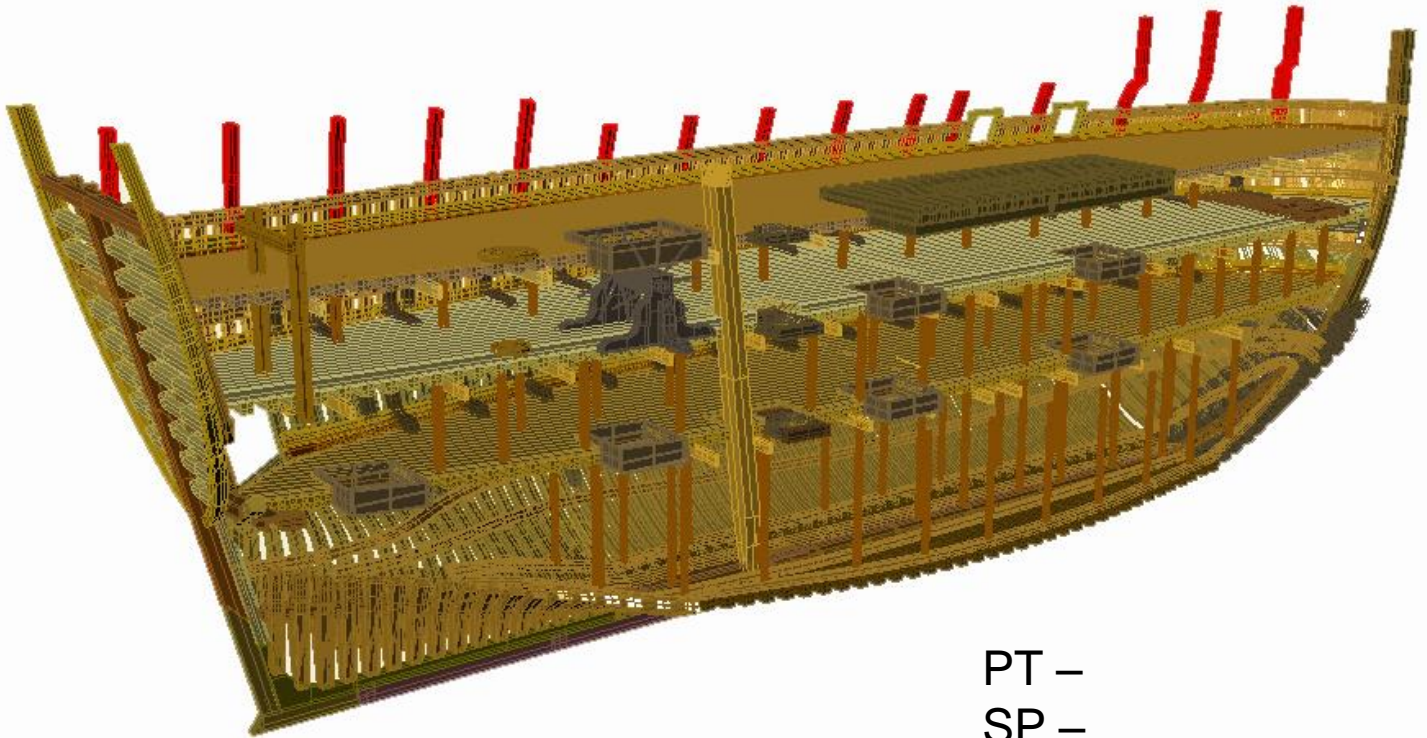
- PT –
- SP – Borda
- CT –
- FR –
- IT –
- UK – Caprail
- NL –



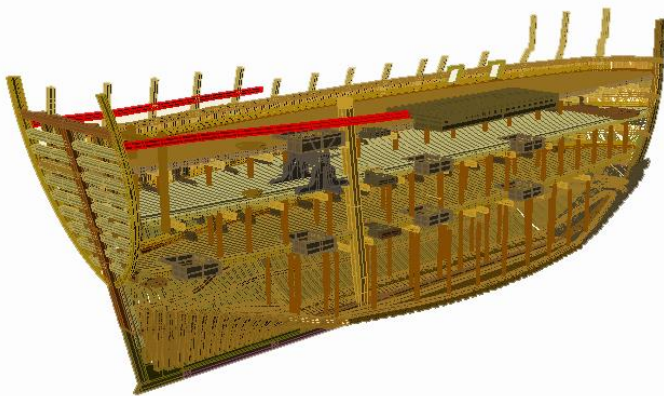
- PT –
- SP –
- CT –
- FR –
- IT –
- UK –
- NL –

3D Model: Alex Hazlett

Castles



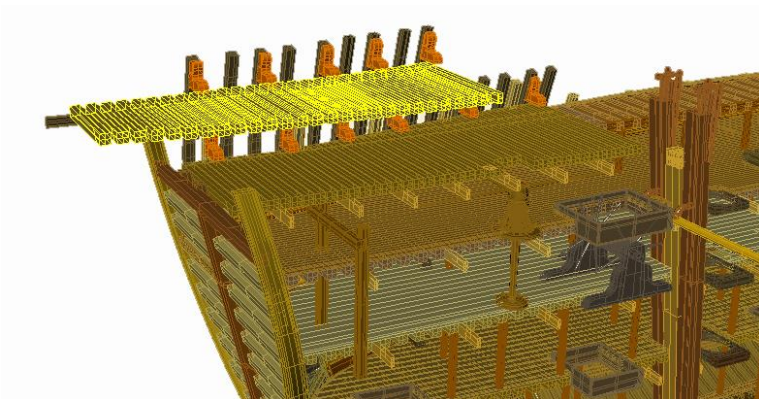
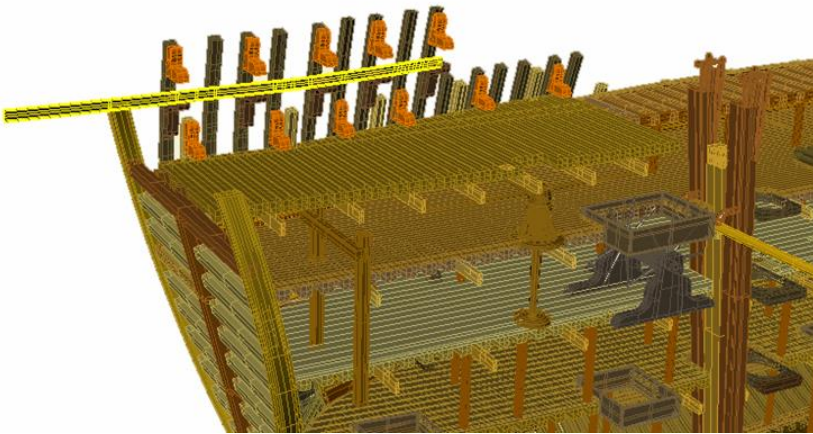
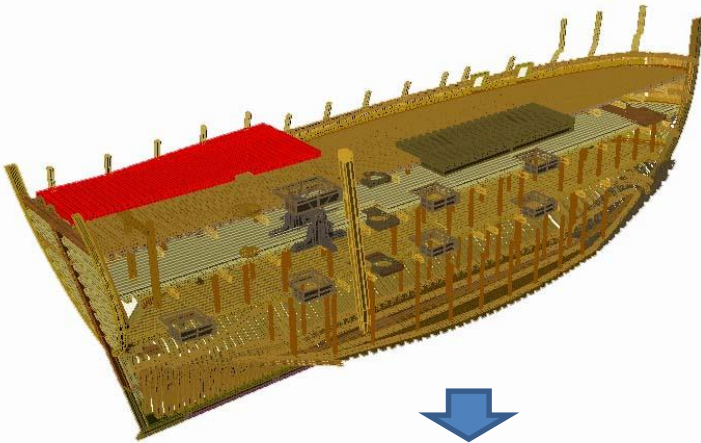
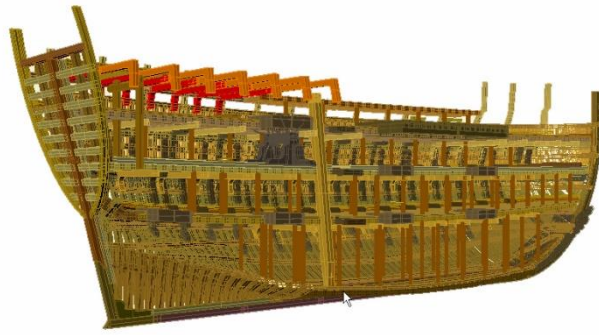
- PT –
- SP –
- CT –
- FR –
- IT –
- UK –
- NL –



- PT –
- SP – Regala
- CT –
- FR –
- IT –
- UK –
- NL –

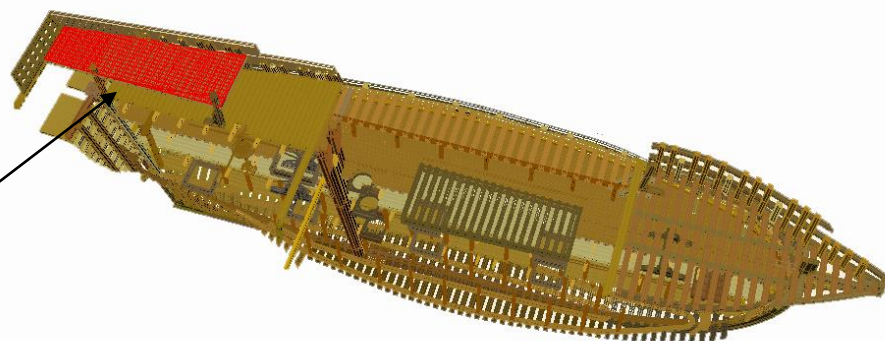
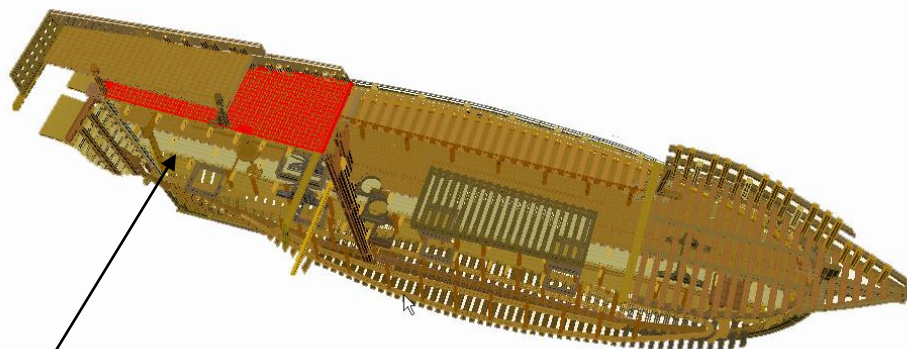
3D Model: Alex Hazlett

Stern Castle



3D Model: Alex Hazlett

Stern Castle



PT – Tolda e Alcáçova

SP –

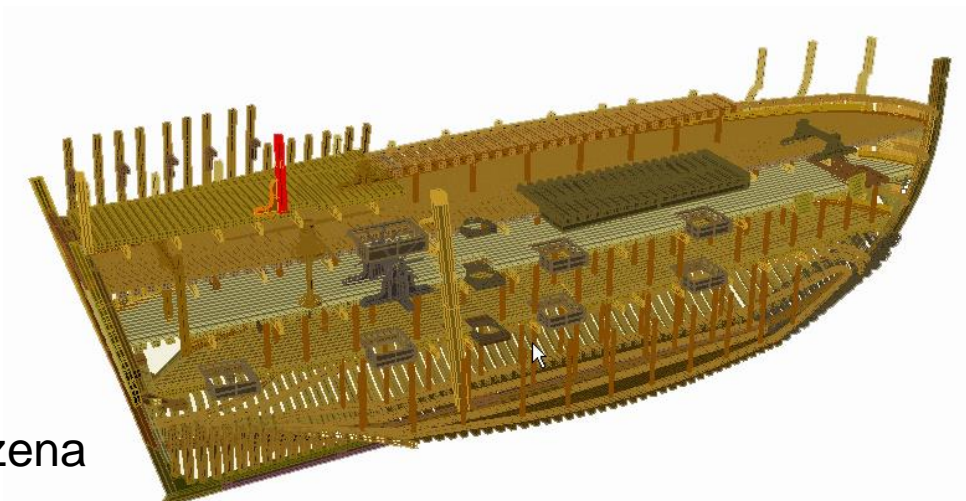
CT –

FR –

IT –

UK –

NL –



PT – Carlinga da mezena

SP –

CT –

FR –

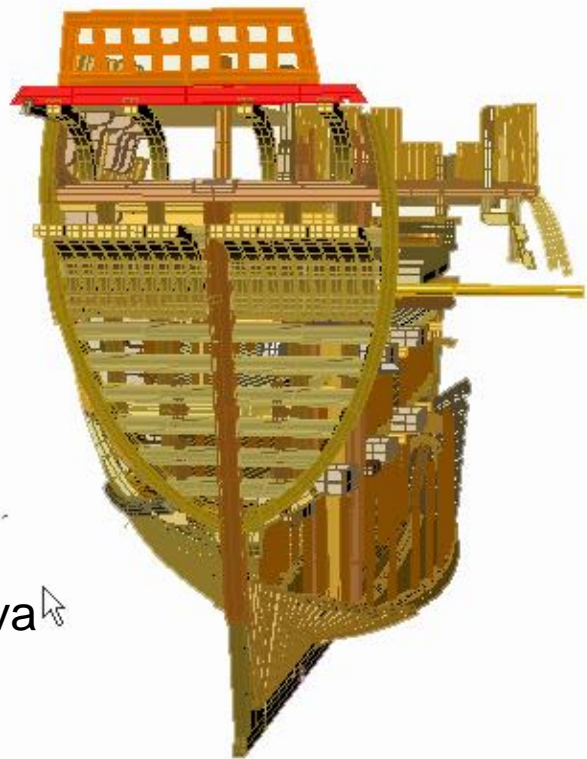
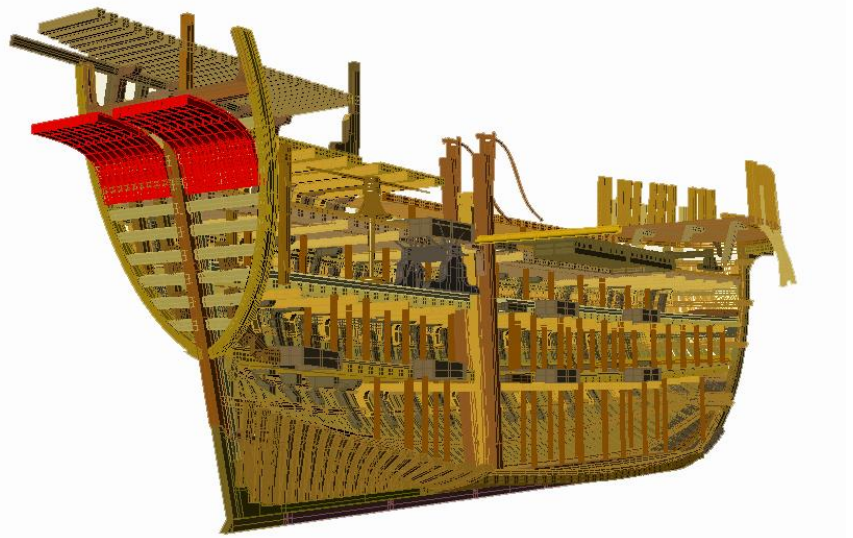
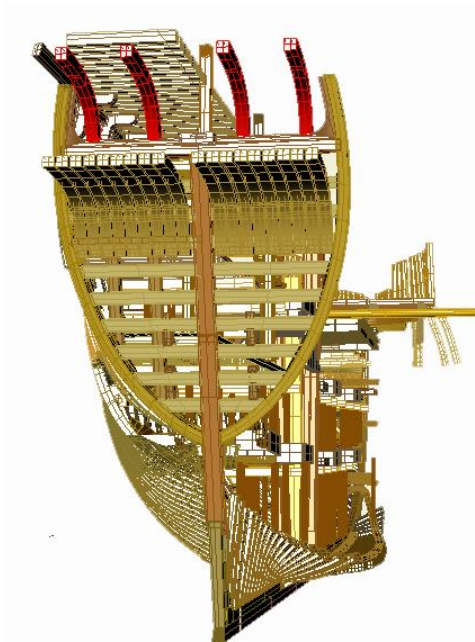
IT –

UK – Mizzen maststep

NL –

3D Model: Alex Hazlett

Stern Castle



PT – Cambotas da tolda e alcáçova

SP –

CT –

FR –

IT –

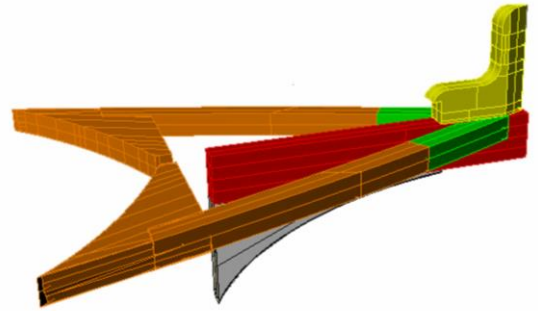
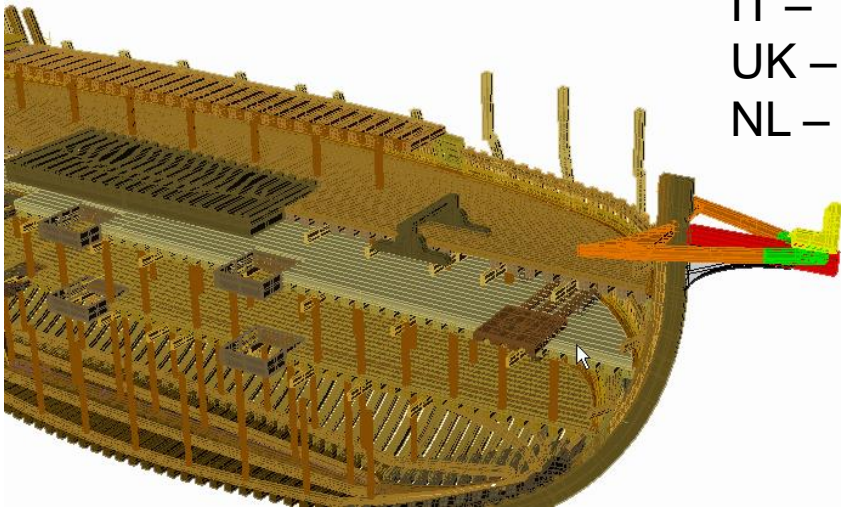
UK –

NL –

3D Model: Alex Hazlett

Fore Castle

- PT – Beque / Falcão
- SP –
- CT –
- FR –
- IT –
- UK – Beakhead
- NL –



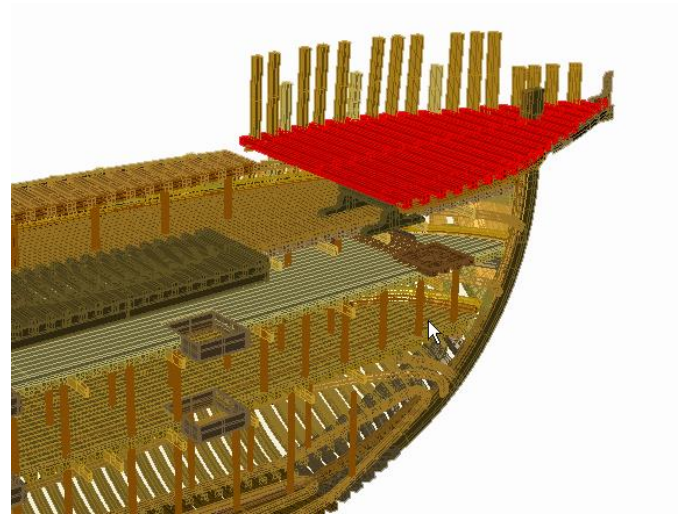
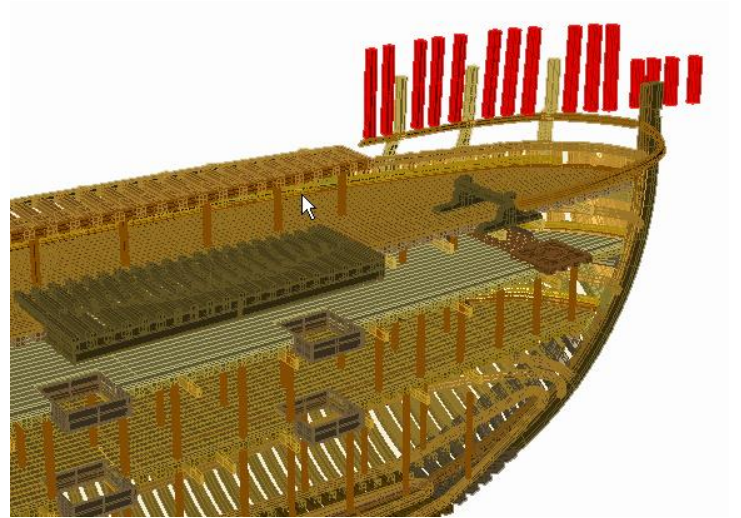
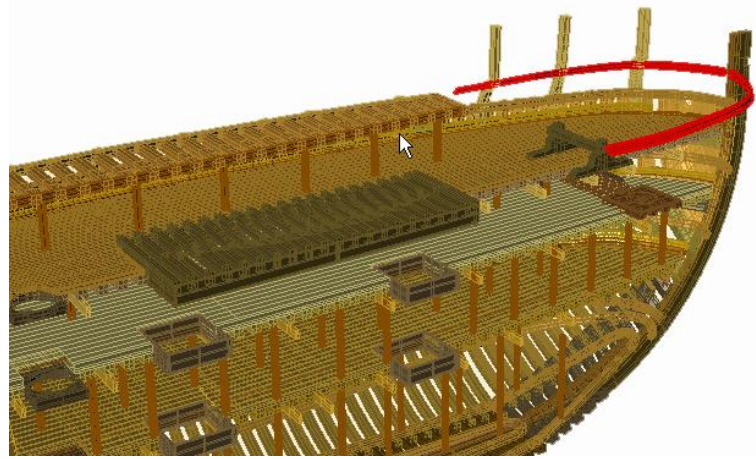
3D Model: Alex Hazlett

Fore Castle

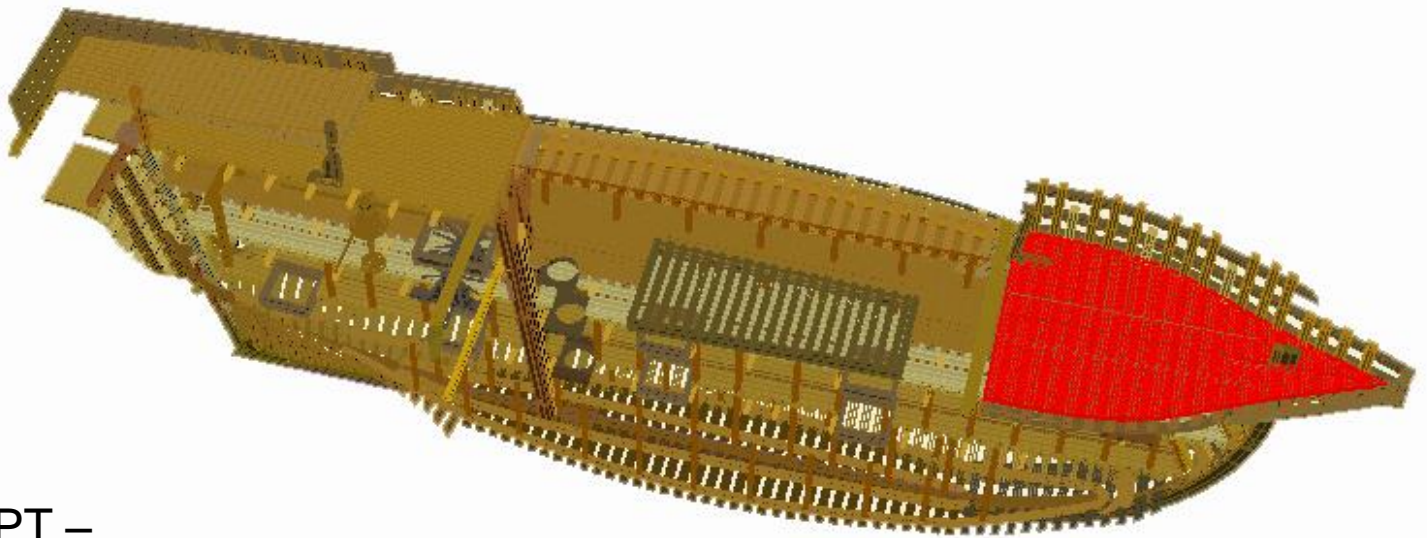
PT –
SP –
CT –
FR –
IT –
UK –
NL –

PT –
SP –
CT –
FR –
IT –
UK –
NL –

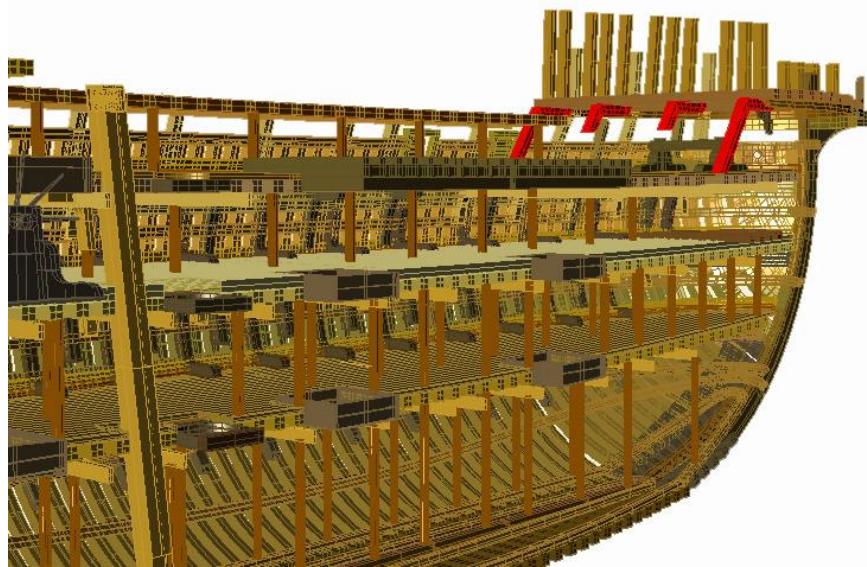
PT –
SP –
CT –
FR –
IT –
UK –
NL –



Fore Castle

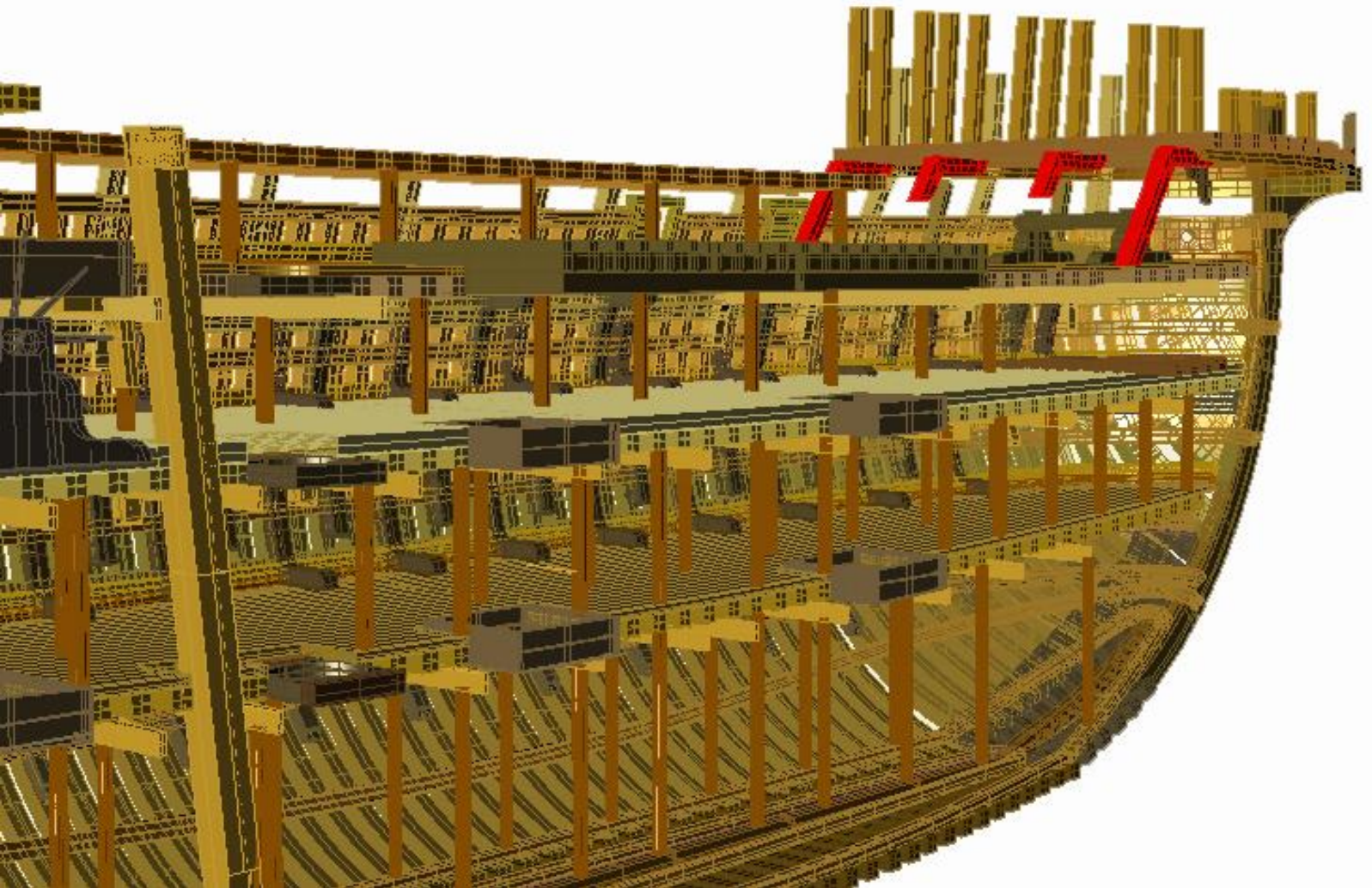


PT –
SP –
CT –
FR –
IT –
UK –
NL –



PT –
SP –
CT –
FR –
IT –
UK –
NL –

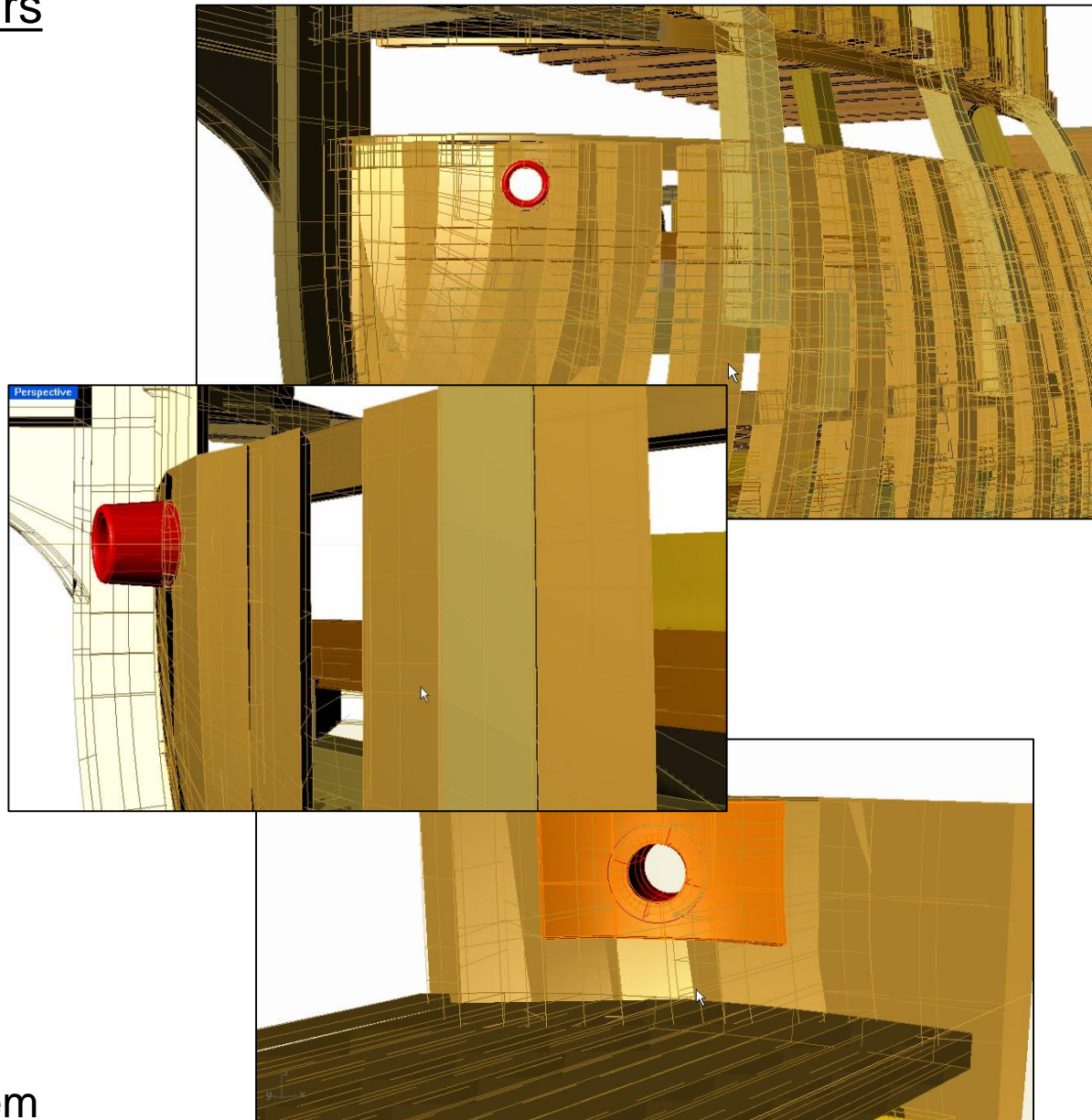
Fore Castle



PT –
SP –
CT –
FR –
IT –
UK –
NL –

3D Model: Alex Hazlett

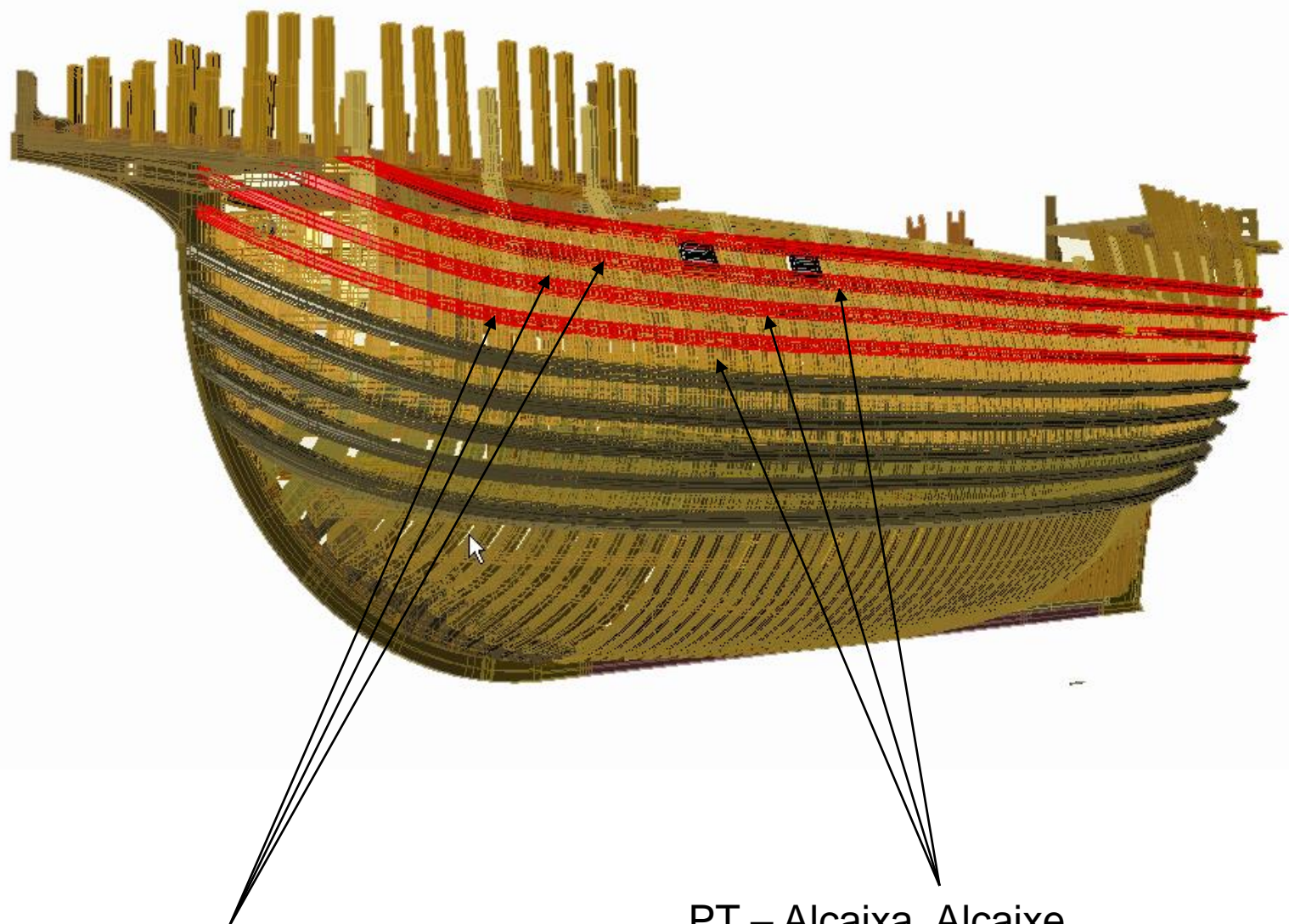
Hawse timbers



- PT – Escovem
- SP – Escobén
- CT –
- FR –
- IT –
- UK – Hawse hole
- NL –

3D Model: Alex Hazlett

Wales

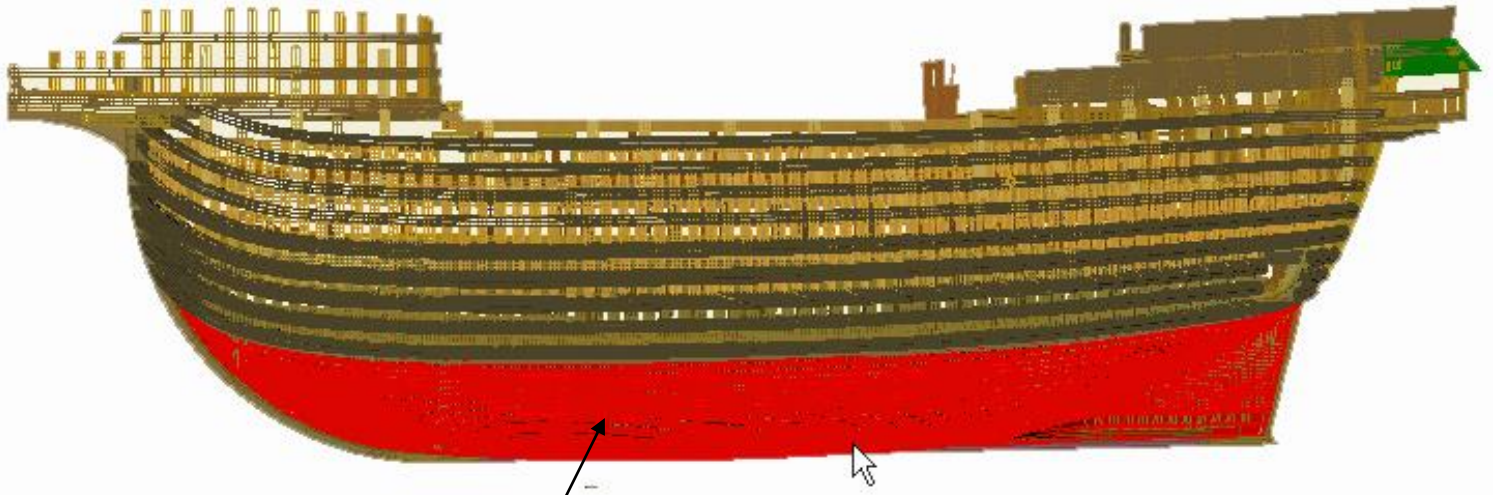


PT – Cintas
SP – Cintas
CT –
FR – Préceintes
IT –
HR –
UK – Wales
NL –

PT – Alcaixa, Alcaixe
SP –
CT –
FR –
IT –
HR –
UK – Space between wales
NL –

3D Model: Alex Hazlett

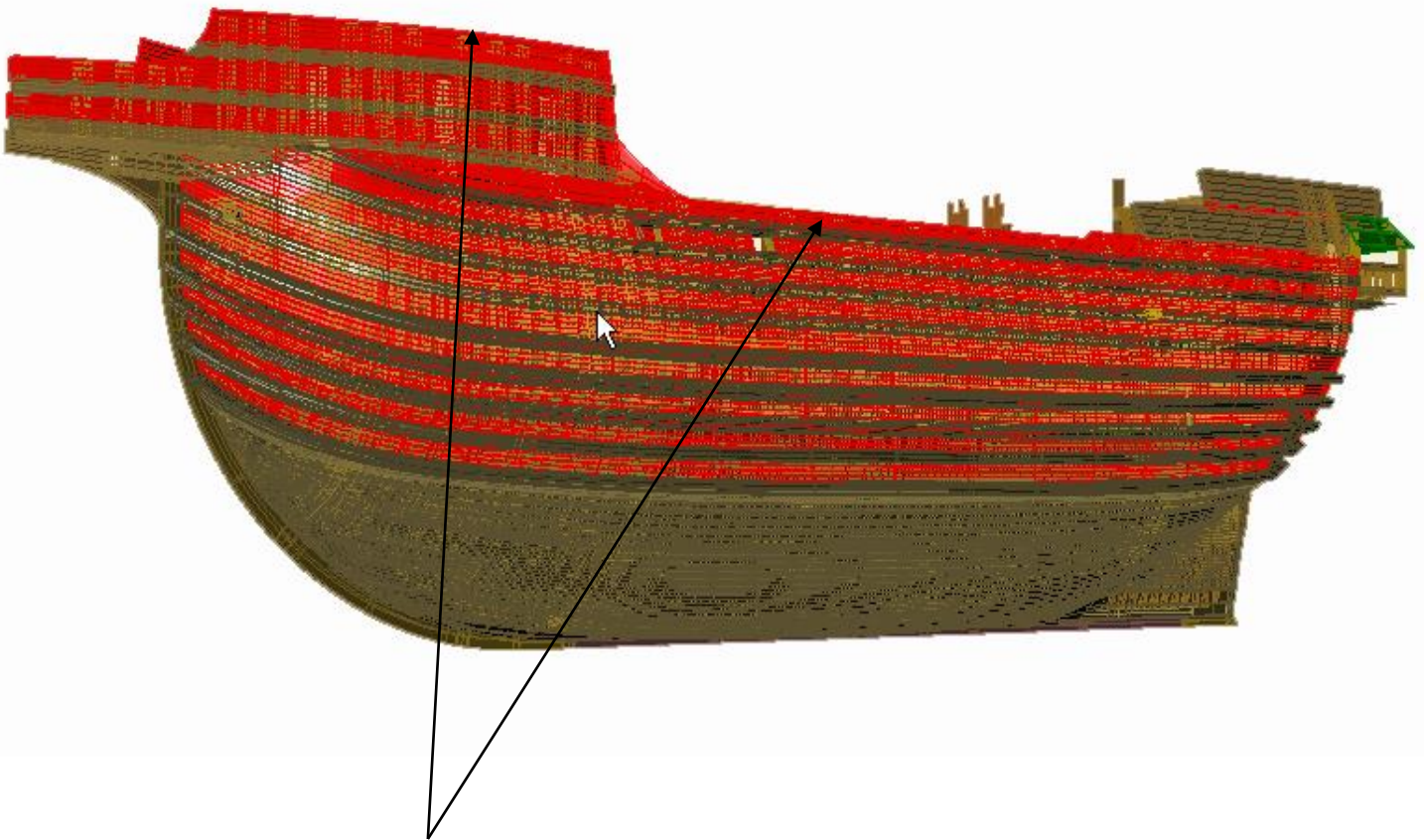
Planking



- PT – Tabuado de forro
- SP – Forro
- CT – Folre
- FR – Bordé
- IT –
- UK – Hull planking
- NL –

3D Model: Alex Hazlett

Caprail

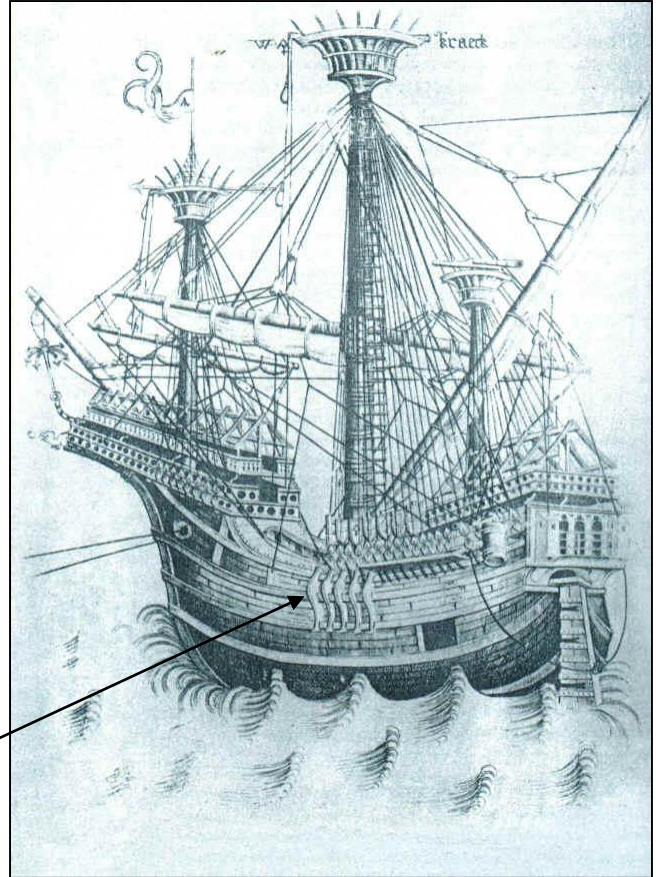
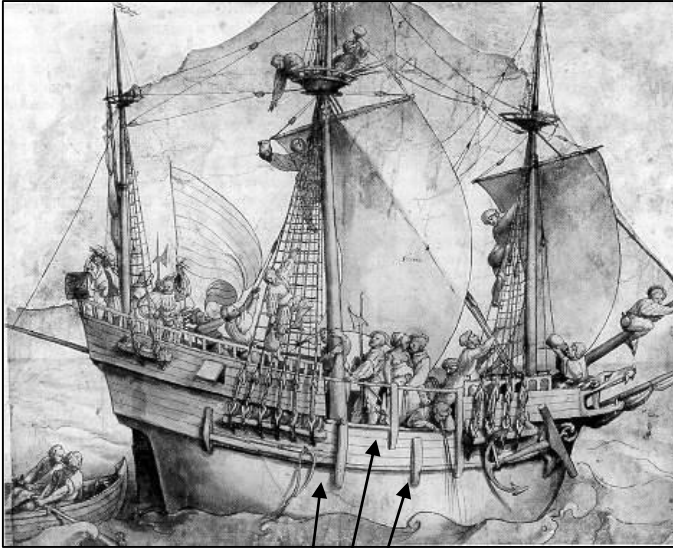


- PT – Alcatrate
- SP –
- CT –
- FR –
- IT –
- UK – Caprail
- NL –

3D Model: Alex Hazlett

Fender Cleats

Hans Holbein, c. 1530

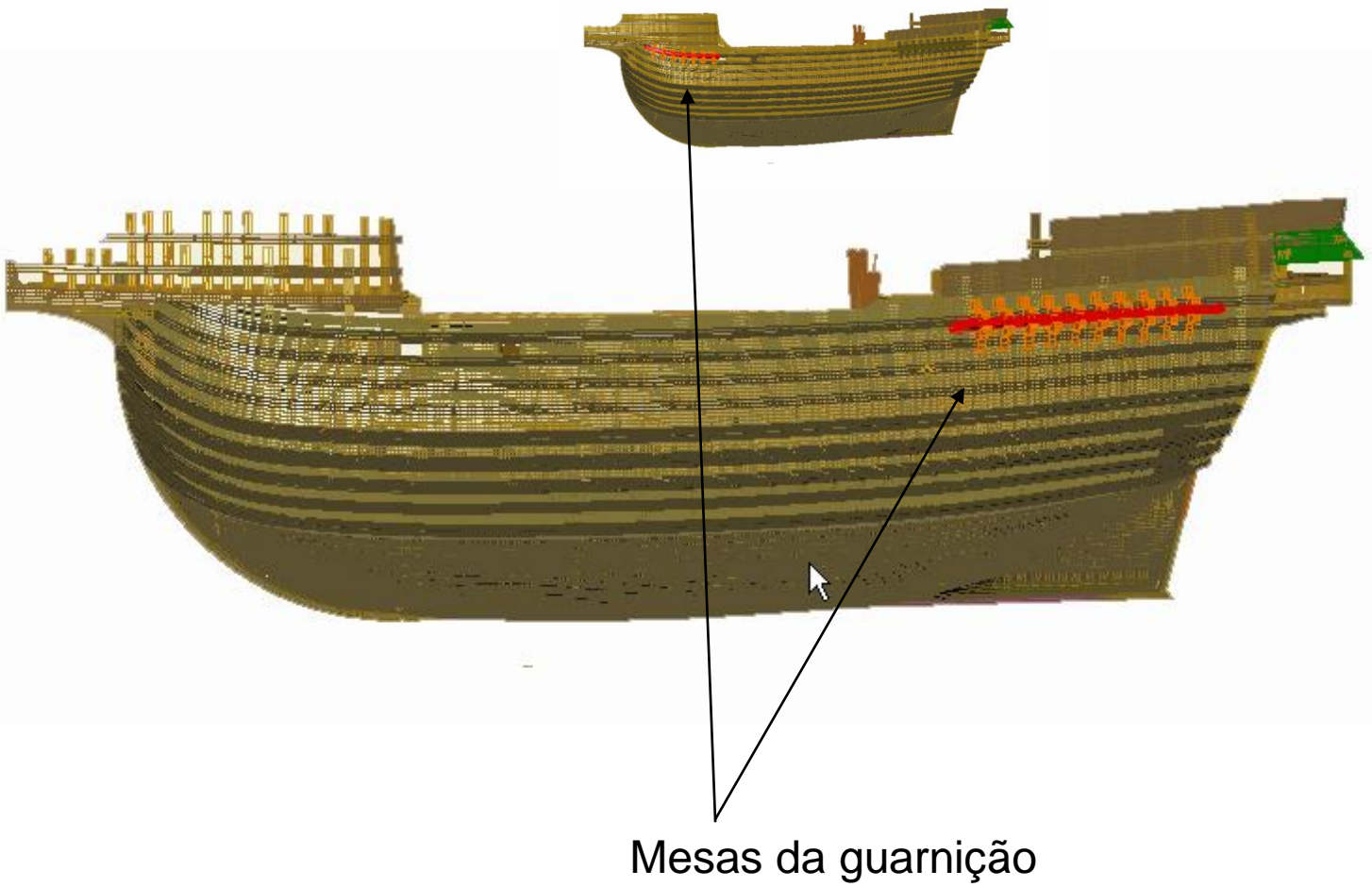


Master WA, c. 1470

- PT – Apostaréus
- SP –
- CT –
- FR – Taquet ?
- IT –
- UK – Fender Cleats
- NL –

3D Model: Alex Hazlett

Channels



Mesas da guarnição

PT – Mesas da guarnição

SP –

CT –

FR –

IT –

UK – Channels

NL –

3D Model: Alex Hazlett

Varanda

PT – Varanda

SP –

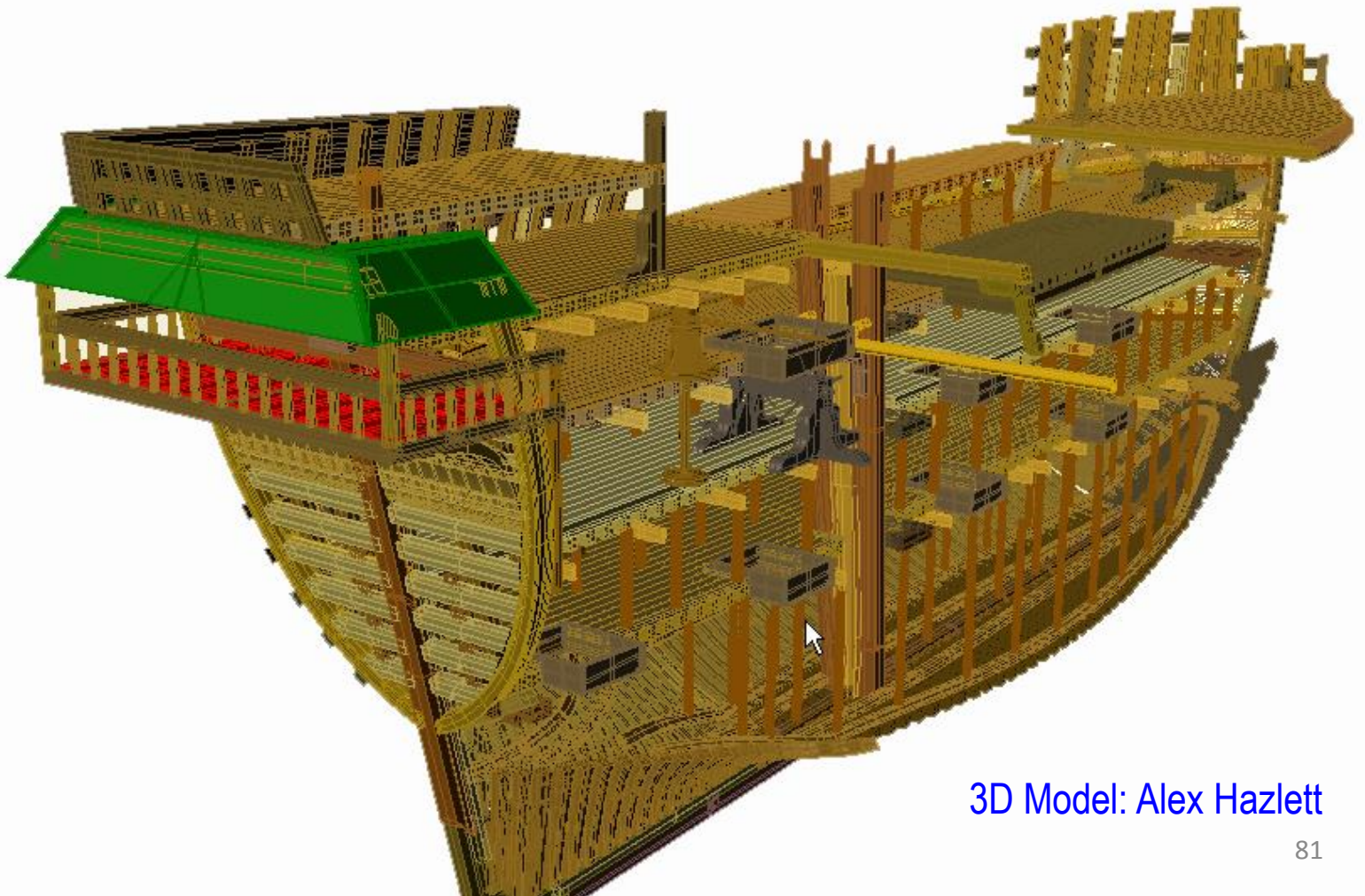
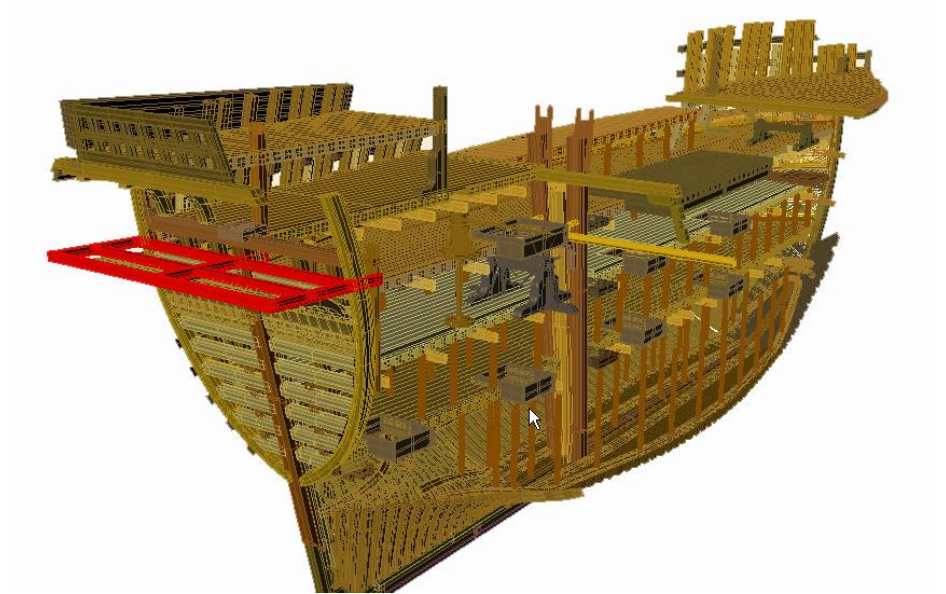
CT –

FR – Balcon

IT –

UK – Gallery

NL –



3D Model: Alex Hazlett

Contributions:

Filipe Castro, Alexander Hazlett, Maria João Santos,
Marijo Bérubé, Massimo Capulli, Ricardo Borrero

