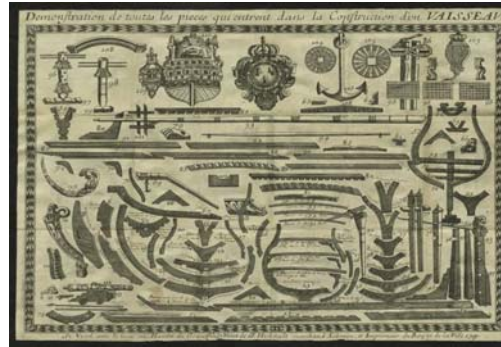




ForSEAdiscovery Project
 WP2\ESR6
 Adolfo Miguel Martins



Developing dendro-archaeological approaches in Nautical Archaeology: integration of ring studies, dendrochronology and timber morphology (3D CAD) for the reconstruction of past forestry practice and exploitation (WP2).

Basic Concepts

Archaeology and history, either through the archaeological excavations or by researching in the archives, look for reconstruct the past, but specially the people that somehow contributed to the present days.

← **History and Archaeology**

Dendrochronology →

Weizsäcker: Barriers erected between the different branches of knowledge are at the root of many of our problems. One specialized science is not able to provide a complete global picture which, in the complexity of our modern existence, would give us something firm to hold on to. This is why we are looking for a synthesis; we want a comprehensive view¹.

As Steffy said (...) a wooden ship was, in reality, far more than a lifeless structure. It began as a desire for profit, a hope for victory, or a dream of exploration or conquest in the minds of its originators. The idea moved to the shipyard, where the efforts of shipwrights, carpenters, and smiths (...) converted hundreds of trees into a variety of shapes and joined them together².

← **Nautical Archaeology**

¹ SCHWEINGRUBER, Fritz Hans : Tree Rings Basics and application of dendrochronology 1987 D. Reidel Publishing Company p.7

² STEFFY, John Richard: *Wooden ship building and the interpretation of shipwrecks*. 1994 3.^o ed.(2006) Texas A&M University p. 9.

How can we see trees in the timbers?



Developing dendro-archaeological approaches in Nautical Archaeology: integration of ring studies, dendrochronology and timber morphology (3D CAD) for the reconstruction of past forestry practice and exploitation (WP2).



Dendrochronology



History and Archaeology



Nautical Archaeology

Main Task

Development of digital techniques for 3D reconstruction of the growth pattern, age structure and morphology of parent trees employed in ship timbers in Iberian shipbuilding of the period.

Common Tasks

Fieldwork programmes related to both underwater archaeology and dendrochronology sampling

The application of ring-width analysis to recovered dendrochronology samples and delivery of data, samples and sub-samples to be analysed

2014

SEP	OCT	NOV	DEC
1	2	3	4
Starting month	Career Development Plan (draft)	Career Development Plan (draft)	Career Development Plan (draft)
Conference - Eurodendro	Research Proposal Plan (draft)	Research Proposal Plan (draft)	Research Proposal Plan (draft)
Fieldwork - Galcia	Fieldwork - Britany	Fieldwork - Borth	Training Session - Faro Arm
Fieldwork - Chatham Dockyard	Training Session - dendro lab	Training Session - Faro Arm	Building references
	Building references	Building references	Peer-review
	Peer-review	Peer-review	

2015

JAN	FEB	MAR	APR	MAY	JUN	JUL	AGU	SEP	OCT	NOV	DEC
5	6	7	8	9	10	11	12	13	14	15	16
Network meeting	semester report	Fieldwork - underwater sampling	Fieldwork - underwater sampling	Fieldwork - underwater sampling	Fieldwork - underwater sampling	Fieldwork - underwater sampling	semester report	Conference - Eurodendro			
Training Session - History of Wooden Shipbuilding				Conference - LASA	Training Session - Historiography and archive research			Conference - ISBSA			
Training Session - Books and treatises on Shipbuilding											
Visiting researchers - Prof Dr. Filipe Castro											Training Session - Geographic Information Systems (Training in GIS)
Workshop - Communication and Presentation Skills											

2016

JAN	FEB	MAR	APR	MAY	JUN	JUL	AGU	SEP	OCT	NOV	DEC
17	18	19	20	21	22	23	24	25	26	27	28
Network meeting	semester report	Fieldwork - underwater sampling	Fieldwork - underwater sampling				semester report			Trinning Session - Advance Team and Project Management	Network meeting
Workshop - Scientific communication and multi disciplinary team-work											Training Session - Dendroarchaeology of Ships Practice and Prospect
Training Session - Dendrochronology and wood anatomy											Visiting Researchers - Dr. Aoife Daly
											Visiting Researchers - Prof. Dr. Tomaz Wazny
											Conference - IKUWAVI

2017

JAN	FEB	MAR	APR	MAY	JUN	JUL	AGU
29	30	31	32	33	34	35	36
Writing Teasis	semester report					List of anatomical characteristics that allow reliable differentiation among respectively, deciduous oak and pine species and differentiation between stem and branch wood.	Finish month

Research Proposal

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graph TD; A[Research Proposal] --> B[Combination between history, dendrochronology and archaeology]; B --> C[Dendro - archaeology]; B --> D[Nautical archaeology]; B --> E[Timber record];
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Combination between
history, dendrochronology
and archaeology

Dendro – archaeology

Nautical archaeology

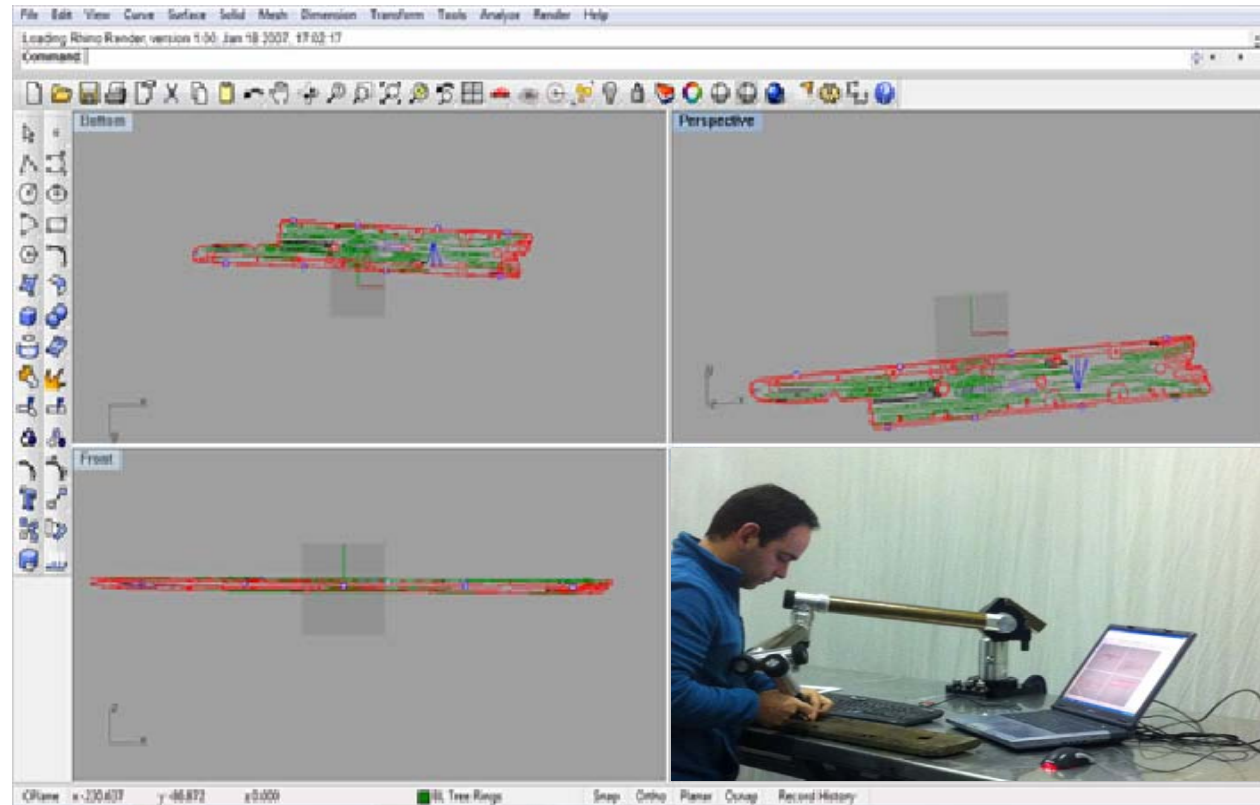
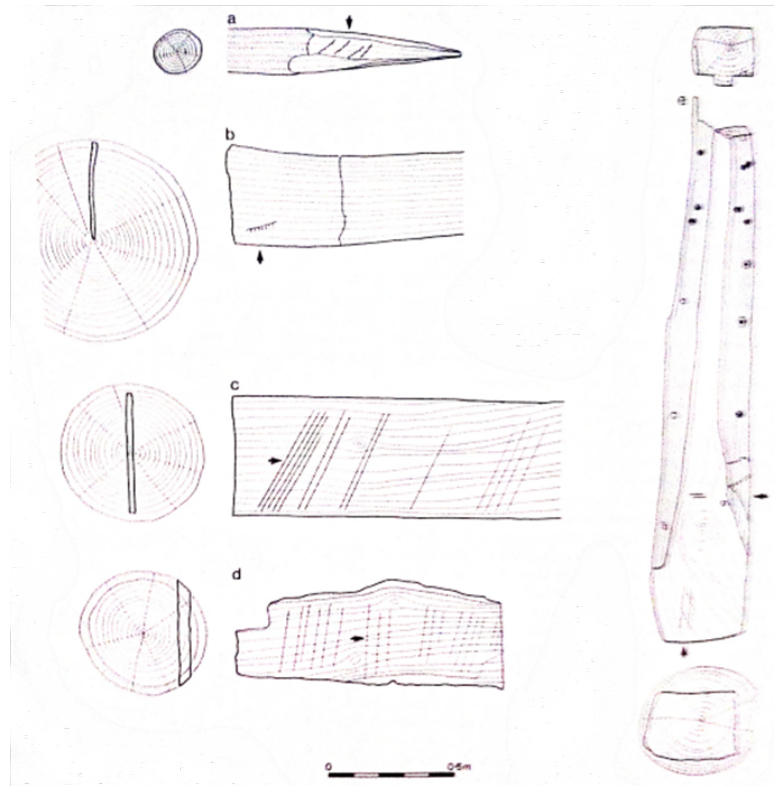
Timber record

The timbers

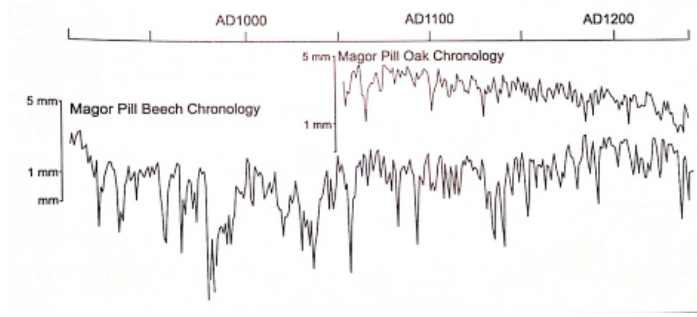


Praia do Belinho – Archaeological site

Timber record

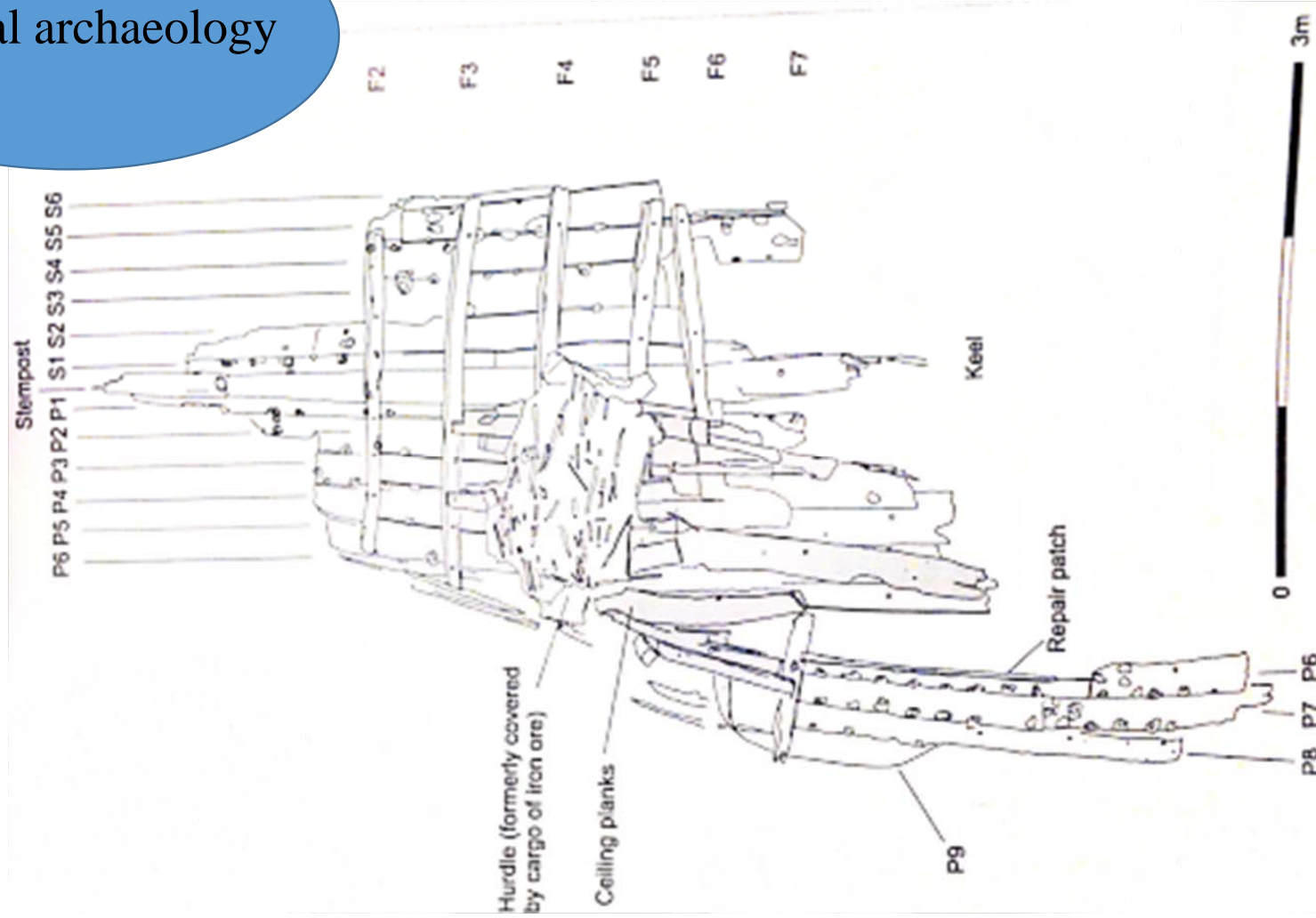


Dendro – archaeology

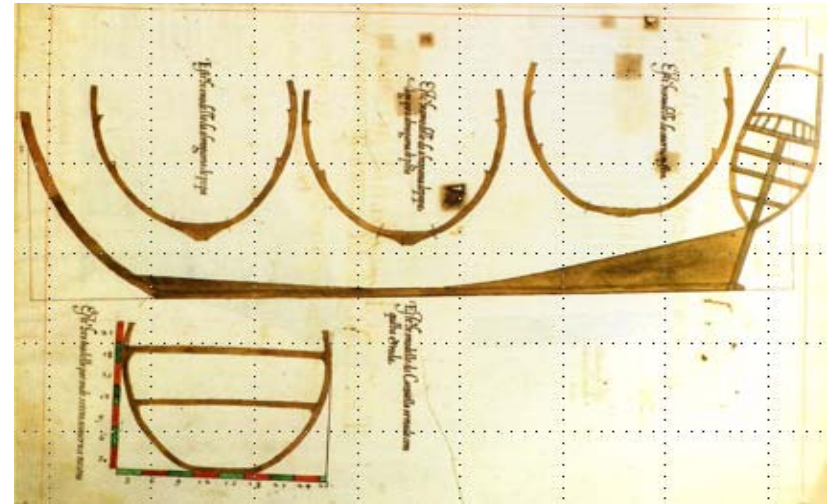
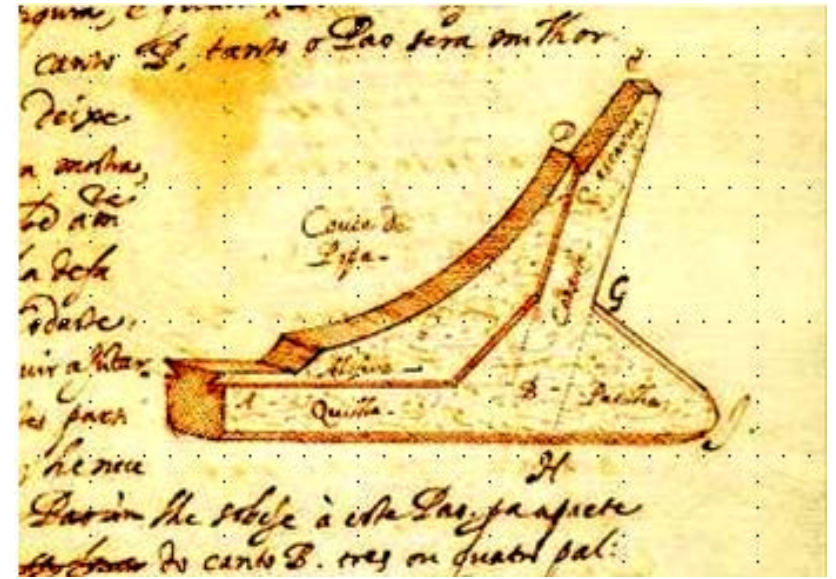
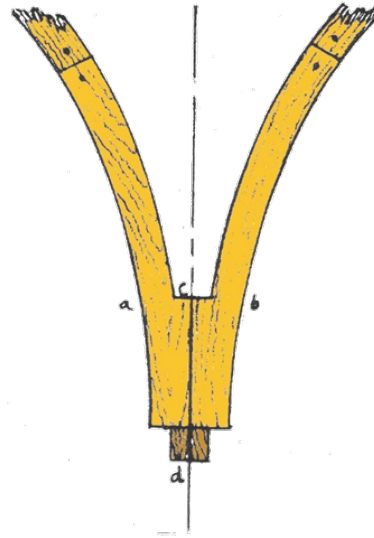
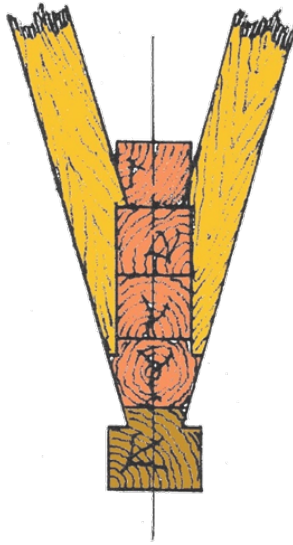
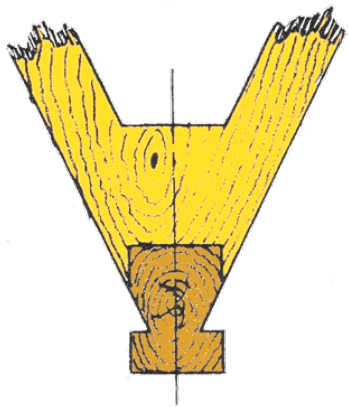


Praia do Belinho – Archaeological site

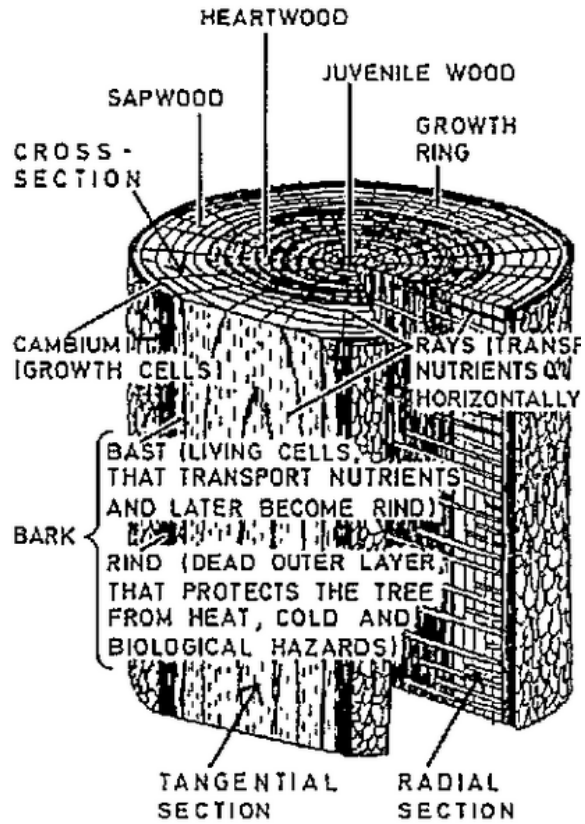
Nautical archaeology



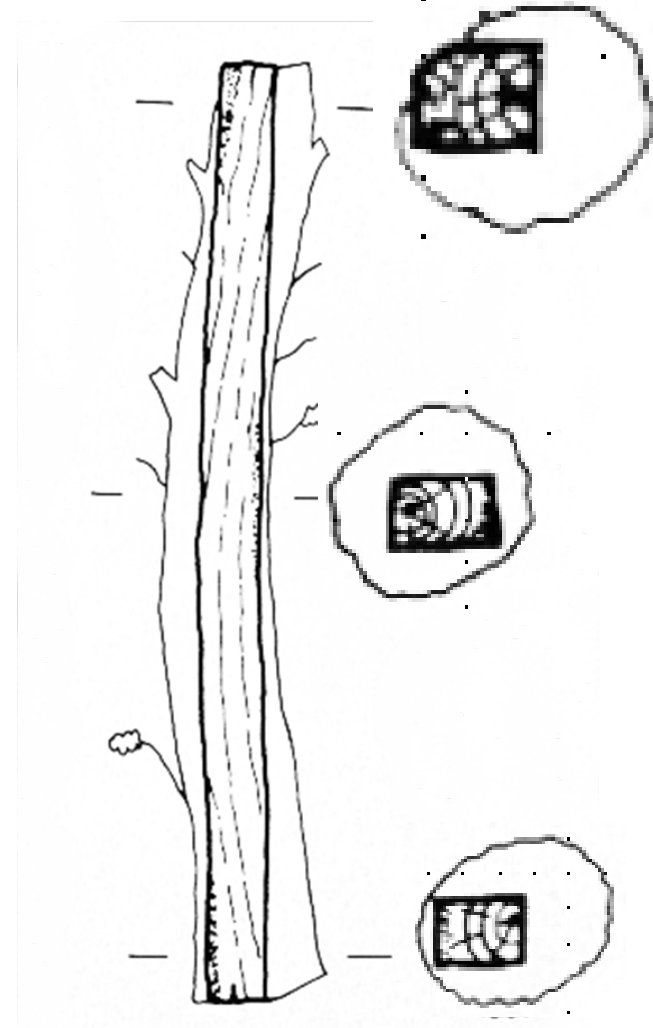
Treatises and glossaries



How can we see trees in the timbers?



STRUCTURE OF A TREE TRUNK
(HARDWOOD AND SOFTWOOD)





Thank you