

Ronald Bockius (ed.)

Between the Seas

# RGZM – TAGUNGEN

Band 3

**Römisch-Germanisches  
Zentrum**  
Forschungsinstitut für  
Vor- und Frühgeschichte

**R | G | Z | M**

Ronald Bockius (ed.)

## **BETWEEN THE SEAS**

**TRANSFER AND EXCHANGE IN NAUTICAL TECHNOLOGY**  
PROCEEDINGS OF THE ELEVENTH INTERNATIONAL SYMPOSIUM  
ON BOAT AND SHIP ARCHAEOLOGY  
MAINZ 2006

**ISBSA 11**

Hosted by  
Römisch-Germanisches Zentralmuseum,  
Forschungsbereich Antike Schifffahrt, Mainz

With support from  
Gesellschaft der Freunde des  
Römisch-Germanischen Zentralmuseums

Redaktion: Ronald Bockius; Martin Schönfelder (RGZM);  
Antony Brown  
Satz: Manfred Albert (RGZM); Michael Braun (Datenshop  
Wiesbaden)  
Bildbearbeitung: Manfred Albert; Katja Hölzl;  
Ulrike Kessel (RGZM)  
Umschlaggestaltung: Reinhard Köster (RGZM), unter Verwendung  
#####.

### **Bibliografische Information der Deutschen Nationalbibliothek**


Die Deutsche Nationalbibliothek verzeichnet diese Publikation in  
der Deutschen Nationalbibliografie; detaillierte bibliografische  
Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

**ISBN 978-3-88467-142-9**

**ISSN 1862-4812**

© 2009 Verlag des Römisch-Germanischen Zentralmuseums

Das Werk ist urheberrechtlich geschützt. Die dadurch begründeten  
Rechte, insbesondere die der Übersetzung, des Nachdrucks, der  
Entnahme von Abbildungen, der Funk- und Fernsehsendung, der  
Wiedergabe auf photomechanischem (Photokopie, Mikrokopie)  
oder ähnlichem Wege und der Speicherung in Datenverarbei-  
tungsanlagen, Ton- und Bildträgern bleiben, auch bei nur auszugs-  
weiser Verwertung, vorbehalten. Die Vergütungsansprüche des  
§ 54, Abs. 2, UrhG. werden durch die Verwertungsgesellschaft  
Wort wahrgenommen.

Herstellung:   
Printed in Germany.



Published in honour of Ole Crumlin-Pedersen.



## CONTENTS

<i>Ronald Bockius</i>	
Preface .....	XIII
<i>Jerzy Litwin</i>	
Tribute to a Founding Member of the International Symposia on Boat and Ship Archaeology .....	XV
History of ISBSA .....	XIX
List of Contributors .....	XXI
Abbreviations .....	XXV

### NEWS FROM THE MEDITERRANEAN

<i>Chiara Zazzaro</i>	
Nautical Evidence from the Pharaonic Site of Marsa/Wadi Gawasis – Report on Two Parts of a Steering Oar/Rudder .....	3
<i>Cheryl Ward</i>	
Evidence for Ancient Egyptian Seafaring .....	9
<i>Yaacov Kahanov · Hadas Mor</i>	
Dor 2001/1: Updated Information and the Retrieval of a Section of the Shipwreck .....	17
<i>Ofra Barkai</i>	
The Tantura F Shipwreck .....	25
<i>Deborah Cvikel</i>	
Dor 2002/2 Shipwreck: the Construction of a Late Ottoman Period Vessel .....	33
<i>Alessio Canalini</i>	
The Logonovo Wreck near Ferrara – New Evidences by the Use of Modern Methodology of Archaeological Research .....	41

### NEWS FROM THE NORTHERN SEAS

<i>Morten Sylvester</i>	
The Haugvik Boat – a Pre-Roman Iron Age Boat Find from Northern Norway .....	53
<i>Lena Lisdotter Börjesson</i>	
Viking Age Navigation on Trial – Estimates of Course and Distance .....	61

<i>Mike Belasus</i>	
Two Recent Finds of Medieval Shipwrecks in the North of Germany . . . . .	73
<i>Jens Auer · Rex Bangerter · Francis Mallon</i>	
The Wreck of an Elizabethan Merchantman from the Thames – a Preliminary Fieldwork Report . . . . .	79
<i>Tomasz Bednarz</i>	
Gdańsk Wreck, W-27 – an Example of an 18 <sup>th</sup> Century Dutch Merchantman . . . . .	89

## INLAND NEWS

<i>Stefanie Kloob · Harald Lübke</i>	
The Terminal Mesolithic and Early Neolithic Logboats of Stralsund-Mischwasserspeicher – Evidence of Early Waterborne Transport on the German Southern Baltic Coast . . . . .	97
<i>Rosemarie Leineweber · Harald Lübke</i>	
The Logboat of Lake Arendsee – New Evidence of Inland Watercrafts in Sachsen-Anhalt, Germany . . .	107
<i>Jason Rogers</i>	
Documenting Dugouts from Bohemia and Moravia, Czech Republic . . . . .	115
<i>Timm Weski</i>	
Logboats and Local Boats in Bavaria, Germany – a Summary of Current Research . . . . .	123
<i>Irena Radić Rossi</i>	
Dugouts of Croatia . . . . .	133

## INLAND NAVIGATION AND ITS VESSELS

<i>Katrin Thier</i>	
Paddling, Rowing and Steering in Word and Deed – Prehistory of a Word . . . . .	149
<i>Marc Guyon · Éric Rieth</i>	
The Gallo-Roman Wrecks from Lyon, Parc Saint Georges (France) – New Archaeological Data on Ancient Inland »Bottom-Based Shipbuilding« . . . . .	157
<i>Béat Arnold</i>	
A Gallo-Roman Naval Building Yard at Avenches/En Chaplix . . . . .	167
<i>Waldemar Ossowski</i>	
The Origins of Flat-Bottomed River Craft on the Odra and Vistula Catchments . . . . .	177
<i>Petr Sorokin</i>	
Flat-Bottomed Boats from North-Western Russia . . . . .	189



<i>Darina L. Tully</i>	
The Traditional Boats and Fisheries of the Waterford Estuary, Ireland . . . . .	197

<i>Lawrence E. Babits</i>	
The Periauger – an Example of Adapting an European Boat Type to the North Carolina Sounds: a Reconstruction . . . . .	205

## RESEARCH METHODS

<i>Wilfried Stecher</i>	
Dimensions of Ancient Bigships: Can Modern Ship Theory Help to Solve this Enigma? . . . . .	213

<i>Frédéric Guibal · Patrice Pomey</i>	
Ancient Shipwrecks, Naval Architecture and Dendrochronology in the Western Mediterranean . . . . .	219

<i>Ufuk Kocabaş</i>	
Çamaltı Burnu I Shipwreck: the Anchors . . . . .	227

<i>Aoife Daly</i>	
The Chronology of Cogs and their Timber Origin . . . . .	237

<i>Carlo Beltrame</i>	
The Excavation of the Brig <i>Mercure</i> of the Regno Italico (1812) – Why to Investigate a Military Vessel from the Beginning of the 19th Century? . . . . .	249

## INTERACTION INLAND-SEA

<i>Robert Van de Noort</i>	
To Travel is More Important Than to Arrive: Seafaring between Britain and the Continent in the 2 <sup>nd</sup> Millennium B.C. . . . .	259

<i>Patrice Pomey</i>	
A New Approach to Mediterranean Nautical Archaeology: Harbour, River and River-Sea Boats . . . . .	267

<i>Luc Long · Sabrina Marlier · Michel Rival</i>	
The Saintes-Maries-de-la-Mer 24 (SM24) Shipwreck (France, A.D. 40-75): a Sea-River Cargo Vessel with Stitched Frames . . . . .	277

<i>Giulia Boetto</i>	
New Archaeological Evidence of the <i>Horeia</i> -Type Vessels: the Roman Napoli C Shipwreck from Naples (Italy) and the Boats of Toulon (France) compared . . . . .	289

<i>Olaf Höckmann</i>	
Models of Bow-Transom Boats from Roman Egypt . . . . .	297

<i>Luc Long · Michel Rival · Sabrina Marlier</i>	
The Gallo-Roman Wreck Arles-Rhône 3: a Flat-Bottomed Riverboat in the Rhône River, in Arles (France) – a Preliminary Report . . . . .	303
<i>Patricia Sibella · John Atkin</i>	
Ports and Navigation in the Gironde Estuary (France) from Antiquity to Middle Ages: Brion, the Reysson Marsh and the Gironde Estuary . . . . .	313
<i>Aleydis Van de Moortel</i>	
The Utrecht Type: Adaptation of an Inland Boatbuilding Tradition to Urbanization and Growing Maritime Contacts in Medieval Northern Europe . . . . .	321
<i>Aleydis Van de Moortel</i>	
The Utrecht Ship Type: an Expanded Logboat Tradition in its Historical Context . . . . .	329
<i>H. Reinder Reinders</i>	
The Sailing Route from Uffelte to Utrecht . . . . .	337
<i>Thomas Förster</i>	
Dutch-German Trading Relationships in the Baltic Sea between the 14 <sup>th</sup> to 18 <sup>th</sup> Centuries . . . . .	349
<i>Maik-Jens Springmann</i>	
The Ships of the Crusaders – the Exchange of Nautical Expertise between the Mediterranean and the Baltic in the Middle Ages . . . . .	363

## SHIP CONSTRUCTION

<i>Bart Boon · Eelco van Rietbergen</i>	
Aspects of the Analysis of Structure and Strength of Pre-Historic Watercraft . . . . .	377
<i>Ole Crumlin-Pedersen</i>	
Plank Boat – a Problematic Term for Prehistoric Vessels? Archaeological Evidence for the Impact of Logboat Techniques on the Concepts of Early Built Boats . . . . .	387
<i>Hanus Jensen</i>	
Full-Scale Reconstruction of Expanded Boats from the Iron Age . . . . .	399
<i>Ronald Bockius</i>	
Markings and Pegs: Clues to Ancient Ship Architecture? . . . . .	407
<i>George Indruszewski</i>	
The Origin of the <i>Clinker</i> Hull Construction – a Technological Intercourse of European Dimension . . .	409
<i>Iwona Pomian · Jerzy Litwin</i>	
Attempt at Evaluating the Scientific Value of the P-2 Boat Originating from the Early Middle Ages . .	421

<i>Jan Bill</i>	
From Nordic to North European – Application of <i>Multiple Correspondence Analysis</i> in the Study of Changes in Danish Shipbuilding A.D. 900-1600 . . . . .	429
<i>Seán McGrail</i>	
Renaissance and Romano-Celtic Ship Design and Shipbuilding Methods Compared . . . . .	439
<i>Damian Goodburn</i>	
A Newly Discovered Lost Tradition of River Barge Building on the Thames (16 <sup>th</sup> to 18 <sup>th</sup> Centuries) . . .	451
<i>Paul Bloesch</i>	
A Glimpse of the Shipwright’s Secret: Some Evidence from the <i>Barque du Léman</i> . . . . .	459
<i>Daniela Gräf</i>	
Boat Mills in Europe from Early Medieval to Modern Times . . . . .	467
<i>Lucy Blue · Collin Palmer</i>	
The Country Boats of the Ganges Delta – an Ethnographic Study of Inland Navigation . . . . .	479
<i>Julian Whitewright</i>	
Tracing Technology: the Material Culture of Maritime Technology in the Ancient Mediterranean and Contemporary Indian Ocean . . . . .	489
<i>Henrik Pohl</i>	
From the <i>Kattumaram</i> to the <i>Fibre-Teppa</i> – Changes in Boatbuilding Traditions on India’s East Coast . . . . .	499
PLATES 1-6	