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Peter Ettl · Ursula Warnke (eds)

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CONTENTS

Foreword IX

Claus von Carnap-Bornheim · Falko Daim · Peter Ettel · Ursula Warnke

Harbours as Objects of Interdisciplinary Research – Archaeology + History + Geosciences 1

Introductions

Johannes Preiser-Kapeller · Lukas Werther

Connecting Harbours. A Comparison of Traffic Networks across Ancient and Medieval Europe 7

Ralf Bleile

No Harbours without Ships, no Ships without Harbours –

Shipwrecks as Maritime Cultural Heritage of the Baltic Sea 33

Marianne Nitter · Joris Coolen

Any Way the Wind Blows ... Wind Fetch as a Determinant Factor of the Quality of Landing Sites 45

Thomas Engel · Axel Kunz · Hartmut Müller · Lukas Werther

Towards a Virtual Research Environment for Ancient Harbour Data 59

The Mediterranean

Assaf Yasur-Landau · Ehud Arkin Shalev · Paula Rut Zajac · Gil Gambash

Rethinking the Anchorages and Harbours of the Southern Levant 2000 BC - 600 AD 73

Stefan Feuser · Felix Pirson · Martin Seeliger

The Harbour Zones of Elaia – the Maritime City of Pergamon 91

Julia Daum · Martina Seifert

The Adriatic Communication Area: Functional Structure of Roman Imperial Port Cities

and their Facilities along the Italic and Dalmatian Coasts 105

Antonella Antonazzo · Marina Maria Serena Nuovo

Two Ancient Landing Places on the Adriatic Sea: Natural Elements and

Anthropogenic Infrastructures at Cala Incina and Torre Santa Sabina (Puglia/I) 113

Julia Daum

Trajan's Harbours at the Tyrrhenian Coast 133

Nicolas Carayon · Simon J. Keay · Pascal Arnaud · Corinne Sanchez
The Harbour System of Narbo Martius (Narbonne/F) and its Facilities during Antiquity 151

Ada Lasheras González · Patricia Terrado Ortuño
New Approaches to the Study of the Harbour of Tarraco: Archaeological and
Literary Research (3rd Century BC-8th Century AD) 165

Geosciences

Vivien Mathé · Guillaume Bruniaux · Adrien Camus · Julien Cavéro · Camille Fäisse
Marie-Pierre Jézégou · François Lévêque · Corinne Sanchez
Geophysical Investigations into the Roman Port System of Narbonne 185

Valentina Caminnci · Vincenzo Cucchiara · Giuseppe Presti
Geoarchaeology at the Ancient Harbour of Agrigento 195

Iconographic and Written Sources

Stefan Feuser
Images and Imaginations of Roman Imperial Harbours 209

Dominik Heher · Grigori Simeonov
Ceremonies by the Sea. Ships and Ports in Byzantine Imperial Display (4th-12th Centuries) 221

Alkiviadis Ginalis
Emperor or Bishop? Skiathos and the Byzantine Harbour Architecture in the 6th Century AD 249

Myrto Veikou · Ingela Nilsson
Ports and Harbours as Heterotopic Entities in Byzantine Literary Texts 265

The North Sea and the Baltic

Ingo Eichfeld · Daniel Nösler
Farmers, Merchants, Seafarers: a New Discovery of an Emporium of the 1st Millennium AD
on the Southern Lower Elbe 281

Philip Lüth
Hamburg-Harburg, the Harbour of a Small Medieval Town 301

*Bente Sven Majchczack · Steffen Schneider · Tina Wunderlich · Dennis Wilken
 Wolfgang Rabbel · Martin Segschneider*
 Early Medieval Trading Sites on the North-Frisian Island of Föhr.
 First Results of Fieldwork in Witsum and Goting 311

Felix Rösch
 The 11th Century Schleswig Waterfront. Formation, Development and Actors
 of a Commercial Hotspot 329

Inland Navigation

*Lukas Werther · Lars Kröger · André Kirchner · Christoph Zielhofer · Eva Leitholdt
 Michael Schneider · Sven Linzen · Stefanie Berg-Hobohm · Peter Ettl*
 Fossata Magna – a Canal Contribution to Harbour Construction in the 1st Millennium AD 355

*Andreas Wunschel · Peter Ettl · Michael Hein · Sven Linzen
 Christopher-Bastian Roettig · Michael Schneider · Lukas Werther*
 The Waterfront of Karlburg and Salz in the Early and High Middle Ages –
 Interdisciplinary (Geo)Archaeological and Geophysical Studies 373

Lars Kröger
 Ferry Stations as Small Harbours. The Role of River Crossings in the Workaday Life
 at Southern German Rivers 403

Manuela Mirschenz
 The Rhine as a European Transportation Route in Roman Times 415

Mark Driessen
 The Logistic Function of the Rhine-Meuse Delta in the Roman Period:
 the Harbour Town of Voorburg-Arentsburg as a Case-Study 437

List of Contributors 459

FOREWORD

The Priority Programme 1630 »Harbours from the Roman Period to the Middle Ages« funded by the German Research Foundation (Deutsche Forschungsgemeinschaft) in the years 2011-2018 has made it its priority to unite and connect multidimensional approaches to harbour research within the vast research area of the North Atlantic to the Mediterranean. Modern research of the last three to four decades has particularly shown how the integration of geophysical and geoarchaeological methods has brought new insights into interdisciplinary and interpretational approaches. Thus the logical consequence was to dedicate the first international conference on the framework of the Priority Programme to this approach and its wide discussion. It took place from 30 September to 3 October 2015 with the title »Harbours as objects of interdisciplinary research – Archaeology + History + Geosciences«. About 130 participants from 15 nations with 70 lectures presented their work approaches and results within the five sections of the conference: »Plenum keynote-lectures«, »Geophysics and Field Research: Developing methods«, »Geoarchaeology: Changing Harbour Environments«, »Archaeological Features: Harbour Facilities and Infrastructure«, »Written and Iconographic Sources: Complementing the Material Evidence«. The ceremonial address of the evening was given by Sabine Ladstätter (Vienna) on the harbour of Ephesos. On the last day of the conference the participants visited the Viking Museum Haithabu as well as exhibitions at the Schleswig-Holsteinisches Landesmuseum Schloss Gottorf in Schleswig.

Subsequent to the conference in Kiel, the initiators of the Priority Programme decided on what at first glance appears to be an unusual publication strategy in which the predominantly archaeologically and historically oriented papers are being published in the present volume, whereas some mainly geophysical and geoarchaeological papers will be published in Quaternary International Special Issue »Integrated geophysical and (geo)archaeological explorations in wetlands« (guest editors: Christoph Zielhofer, Wolfgang Rabbel, Stefanie Berg-Hobohm, Tina Wunderlich), thereby reaching different milieus, which are, however, interconnected by their interdisciplinary research on harbours. Consequently, the thematic structure of the present volume will differ from the actual conference and the submitted contributions are arranged regionally as well as topically.

Our thanks go especially to Ilka E. Rau, who was both responsible for organising the conference as well as for the editorial responsibilities of this volume. Moreover, our thanks go to the editorial team of the RGZM in Mainz.

The initiators of the SPP 1630 »Harbours from the Roman Period to the Middle Ages«

Claus von Carnap-Bornheim

Falko Daim

Peter Ettel

Ursula Warnke



THE HARBOUR SYSTEM OF NARBO MARTIUS (NARBONNE / F) AND ITS FACILITIES DURING ANTIQUITY

Narbonne is located on the Mediterranean coast of France at the crossroads of two perennial routes of communication (fig. 1). (1) The isthmus of Aquitania, or Gallic Isthmus, runs from the Mediterranean Sea to the Atlantic Ocean between two mountain ranges: the Massif Central in the north and the Pyrenean to the south. (2) The so-called Heraklean Way is the mythic and historical route from Spain to Italy that was supposedly used by Herakles and partially by Hannibal Barca during the Second Punic War¹. This location, fundamental for the port city of Narbonne, was enhanced during the Roman period by the building of the Via Domitia, which more or less followed the route of the Heraklean Way, and the Via Aquitania, which follows the isthmus of Aquitania. Another key point about the location of Narbonne is the mouth of the River Aude, the ancient Atax, which is adjacent to the city, and facilitated communication in the direction of the Atlantic Ocean. According to Strabo², the Atax was navigable for a short distance from Narbonne up to 700 or 800 stadia by land before reaching another waterway, the River Garonne, and ultimately the Atlantic Ocean. Strabo³ again mentions the two principal components of the harbour system: the River Atax and a lagoon that he calls »the lake of Narbonne«. The river and the lagoons are favourable to harbour activities – the harbour potential of these kinds of geomorphological units are well known elsewhere in the ancient Mediterranean – and their location at a crossroads of communication ensured that Narbonne was well suited to act as a key port: the »emporion of all Gaul« in the words of Strabo⁴. The present-day situation of the area differs from that in antiquity⁵. Today, the River Aude runs north of the »Massif de la Clape« and the city of Narbonne is linked to the sea by an artificial watercourse, the Canal de la Robine. The »lake of Narbonne« is now divided into many lagoons and is accessible from the sea through three narrow inlets: the inlets of Gruissan, La Vieille-Nouvelle and Port-la-Nouvelle.

If Narbonne's location was favourable for the establishment of an important port, it was also vulnerable to major landscape changes (fig. 2). These have been caused by the flooding of the Aude, which can be catastrophic even today. Documents dating to the 14th century AD onwards record significant damage caused by a series of catastrophic floods: the most important of these resulted in the diversion of the course of the river north of the Massif de la Clape, thereby depriving the city of its access to the sea. A second cause of landscape change was the progradation of the coastline; sediments carried by the Aude formed a delta in the lagoon, which was further developed by coastal drift. An important challenge to the study of the port is therefore to define the palaeo-environmental context of the surrounding region in antiquity, thereby enabling us to reconstruct the harbour potential of Narbo Martius, something that can be defined as its harbour system.

Definition of human settlement around the harbour system of ancient Narbonne is another challenge. A total of 178 Roman sites (fig. 3) have so far been attested around the lagoons. Our first aim has been to ascertain which of these may have been involved in harbour activities. This has involved listing those sites which were endowed with the appropriate natural or artificial features. Approximately 37 % of sites dating between the 2nd century BC and the 3rd century AD fall within this category. They are located on the islands and the islets of the lagoon (22 sites), around the lagoon (20 sites along the western bank and five along the eastern bank), and beyond the lagoon (four to the north and one to the south). A number of shipwrecks

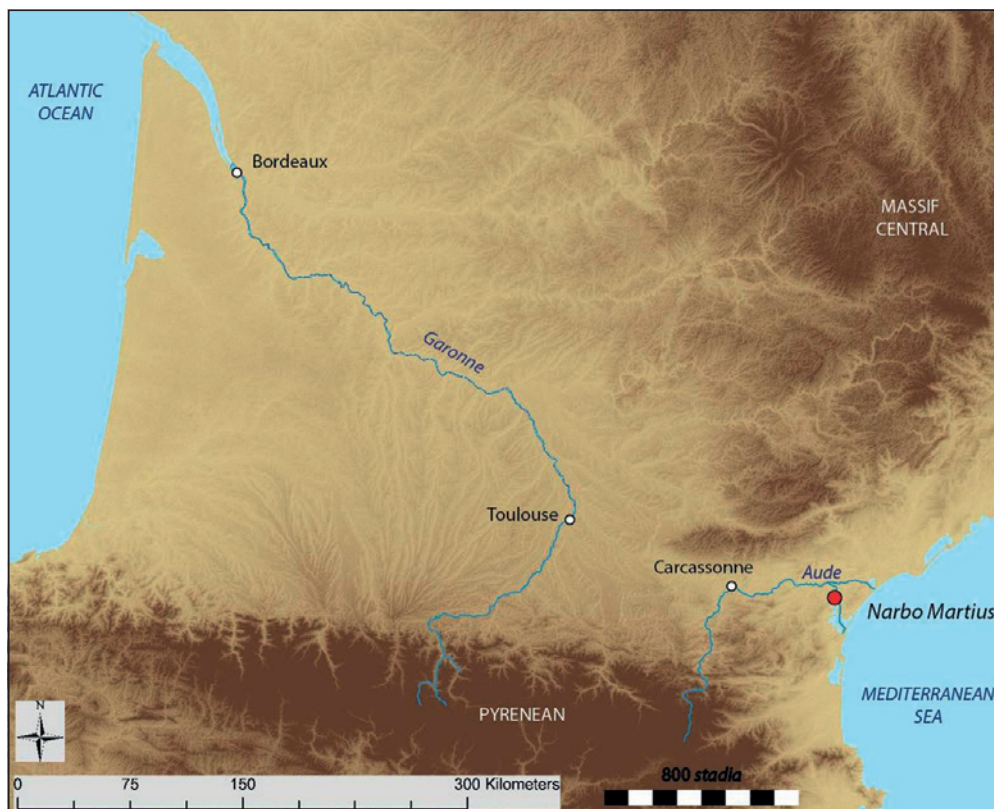


Fig. 1 Location of the *colonia Narbo Martius*. – (Map N. Carayon).

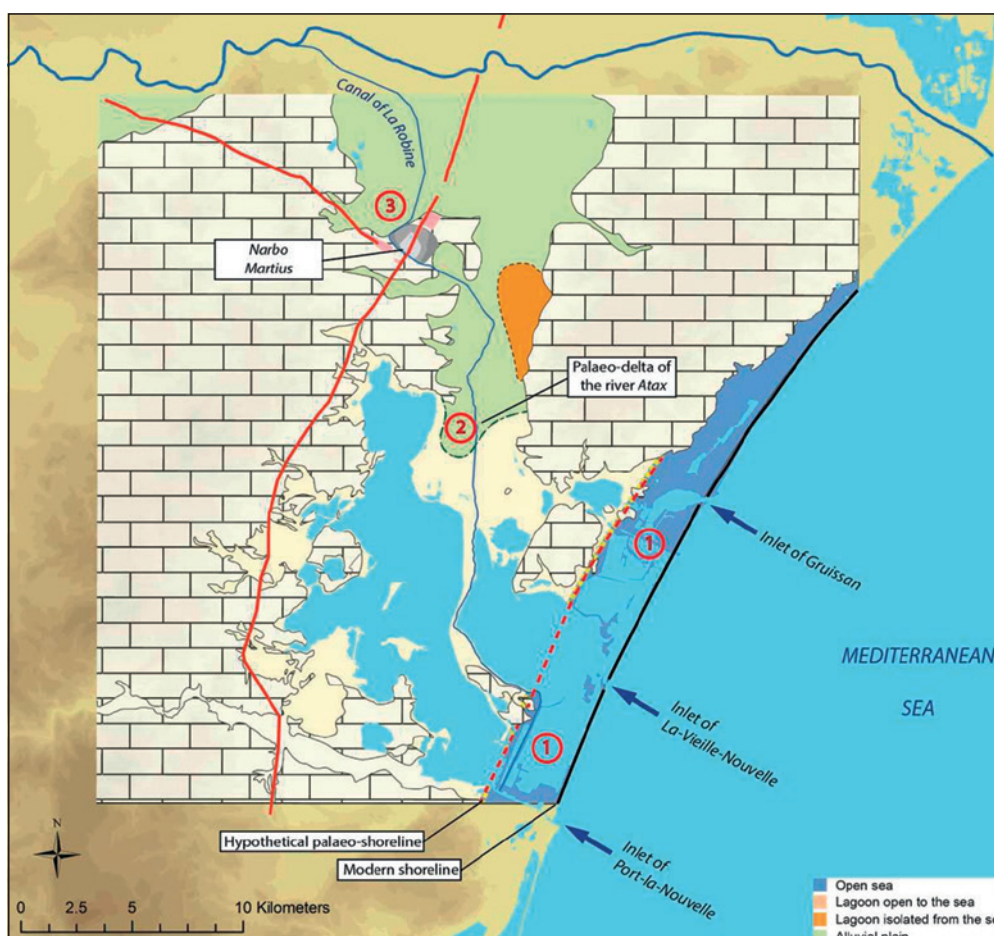
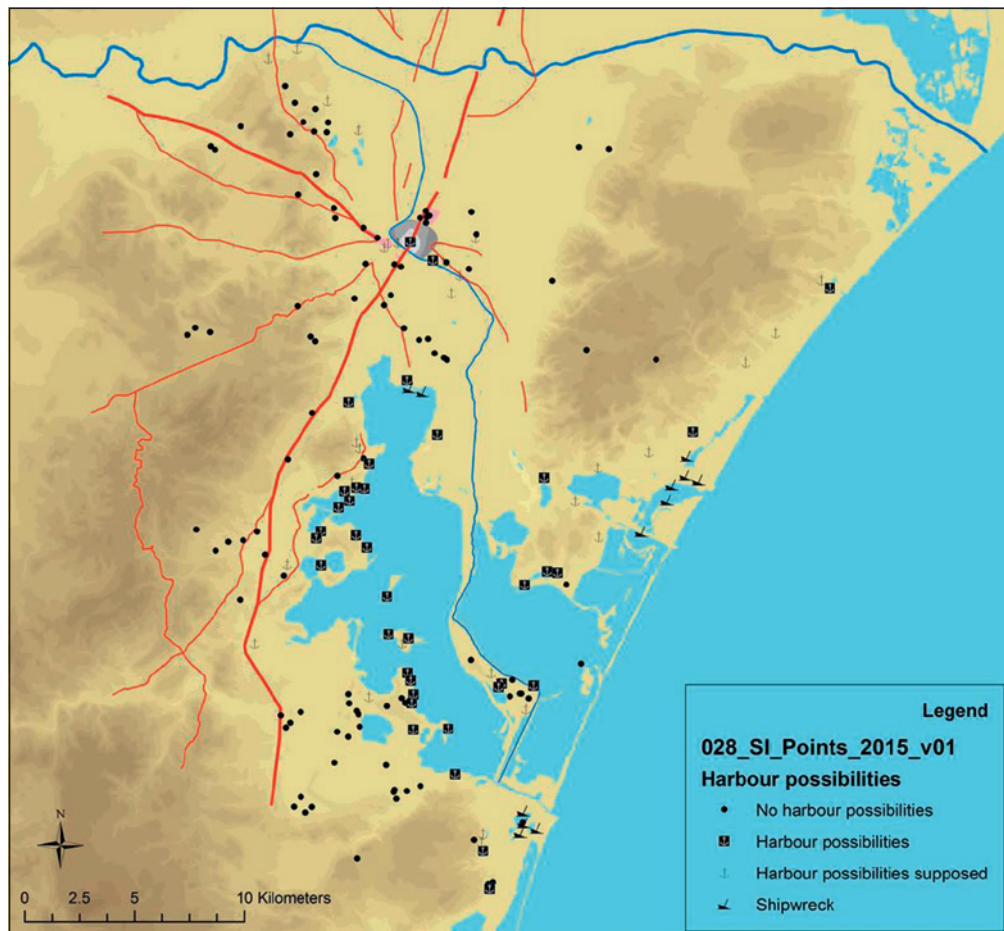


Fig. 2 Geomorphology of the area of Narbonne around 2500/2000 BC with the major challenges of the paleoenvironmental studies. – **1** the sandy ridge and the inlets of the lagoon during Antiquity. – **2** the lower course of the River Aude. – **3** relationships between Narbonne city, the Aude River and the Canal of la Robine. – (Map N. Carayon; after Sanchez/Jézégou 2014).

Fig. 3 Archaeological sites and harbours possibilities in the area of Narbonne (2nd century BC - 3rd century AD). – (Map N. Carayon).



could be indicative of the location of the ancient sandy ridge which closed the lagoon. Finally, 15 sites were situated along the River Atax or an artificial canal. Our first conclusion about the nature of the harbour system of Narbonne is that it should be defined as a river – lagoonal – maritime based system. Our second aim was to refine the chronology of these sites and their function within the harbour system.

PHASE 1: 200-118 BC

Before the foundation of the colony in 118 BC (fig. 4), only 16 sites were occupied, with another ten that are supposed to have been in use. The area is clearly dominated by the *oppidum* of Montlaurès⁶ and some rural sites in its neighbourhood. Some small Iron Age settlements are also documented as Badens, south of Montlaurès, and Monmilan in the Massif des Corbières. In the Massif de la Clape, some evidence for cult activities has been discovered in the cave of La-Vigie, which was first occupied in the Neolithic. Within the islands of the lagoon, two small fishing settlements are occupied at L'Aute⁷ and Castel-Illet⁸. Clearly, we cannot speak about the existence of a harbour system at this stage. The site of Montlaurès had commercial links with Italy, Spain and Marseille via a hypothetical river port in its vicinity, but there were no clear links between the *oppidum* and the other sites of the lagoon. The landing stage of La Nautique⁹ may have begun to be frequented at this time, but the evidence is limited to just a few ceramic sherds.

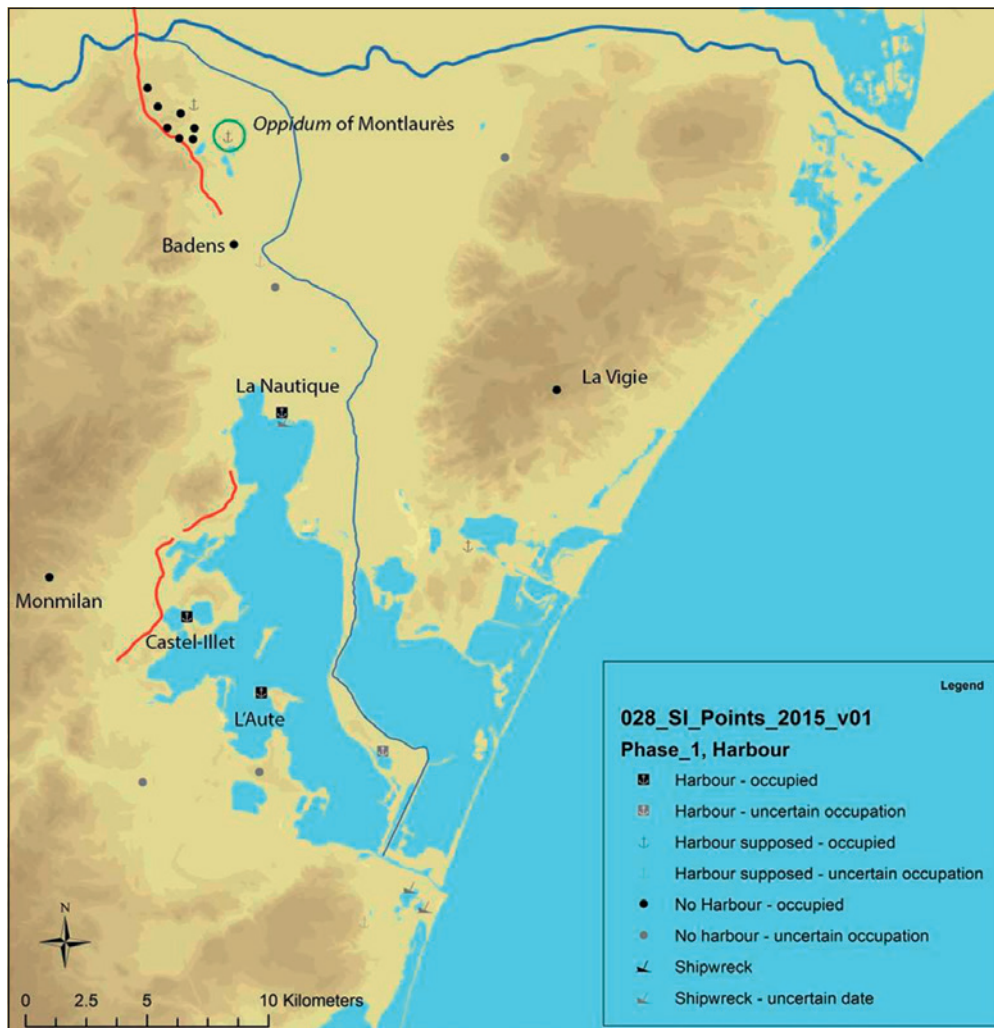
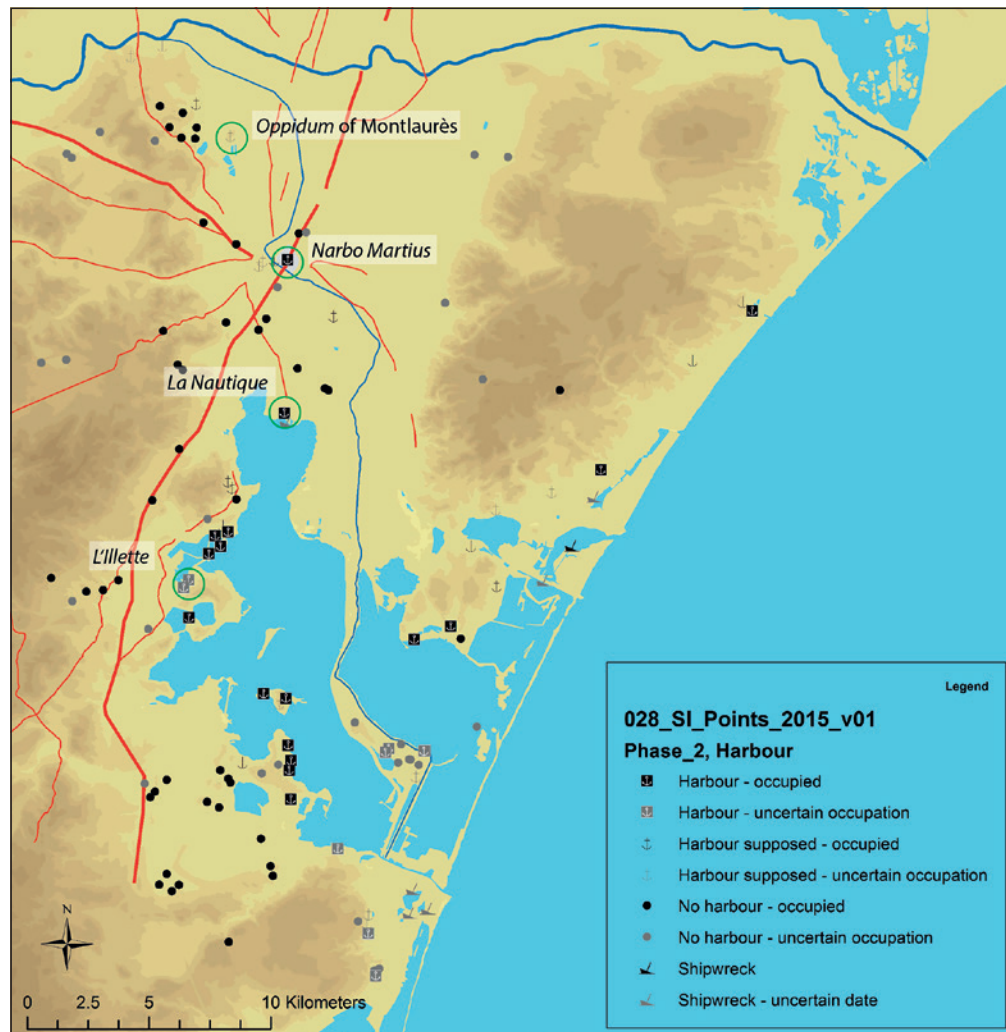


Fig. 4 Archaeological sites and harbours possibilities in the area of Narbonne (phase 1: 200-118 BC). – (Map N. Carayon).

PHASE 2: 118-27 BC

The foundation of the colony in 118 BC marks the starting point for the development of the harbour system. The first important step was the building of the Via Domitia and the Via Aquitania which facilitated communication from Italy to Spain and between the Mediterranean Sea and the Atlantic Ocean. The second was an increase in the number of occupied sites around the lagoon (fig. 5). Some 71 % of all known Roman sites can be ascribed to this period. The number of known harbour sites was also high with about 38 % of known sites having potential in this respect. All the components of the harbour system were thus occupied by this time: the islands and islets, the maritime facade, and the banks of the lagoon, the river and the canal. From the foundation of the colony until the mid-part of the 1st century BC, the area seems to have been organized around two major sites: the *oppidum* of Montlaurès to the north, and the city of Narbonne to the south. The sites around the lagoon were essentially rural in character and devoted to the exploitation of natural resources. This situation represents a final stage of protohistoric settlement patterns, with a complementary relationship between indigenous communities and the Italian settlers based at Narbo Martius. Occupied since the 5th century BC, and with a period of decline between the end of the 3rd and the middle of the 2nd century BC, the *oppidum* of Montlaurès¹⁰ seems to have been the privileged partner of the new community at Narbonne. The period between 150 and 50 BC was represented by the building of ware-

Fig. 5 Archaeological sites and harbours possibilities in the area of Narbonne (phase 2: 118-27 BC). – (Map N. Carayon).



houses on the north-east side of the *oppidum*, while ceramics from the site illustrate commercial links with Italy, with most material comprising Italian amphorae and Campanian A fineware. However, connections with Iberia are indicated by many fragments of Iberian amphorae and fineware from the Catalan coast¹¹. Some amphorae from Marseille are attested as well.

Several excavations within the city illustrate the earliest stages of the colony. The architecture is local in inspiration, with no visible Italian influence. At the site of La Gendarmerie¹², rescue excavations have found two pits filled with materials dating between 120 and 100 BC. The interpretation of the context is unclear although it has been suggested that the pits formed part of a trading settlement along the Via Aquitania. The amphorae were largely dominated by Italian forms and fineware by Campanian A, as at Montlaurès. Fineware from the Catalan coast, including Iberian painted vessels and the so-called Celtic fineware were also represented.

How did the imported material found at Montlaurès and Narbonne reach these two sites? Were they brought directly from the sea and via the waterway on the River Aude, or by means of small landing stages? This question is recurrent in the archaeology of Narbonne for the whole of the Roman period.

The site of La Nautique on the north shore of the lagoon could be one of these landing stages. Phase 1¹³ of a trench excavated underwater dates to the second half of the 2nd century BC, and has revealed 30 fragments of amphorae and Campanian A fineware exclusively from Italy. For the beginning of the 1st cen-

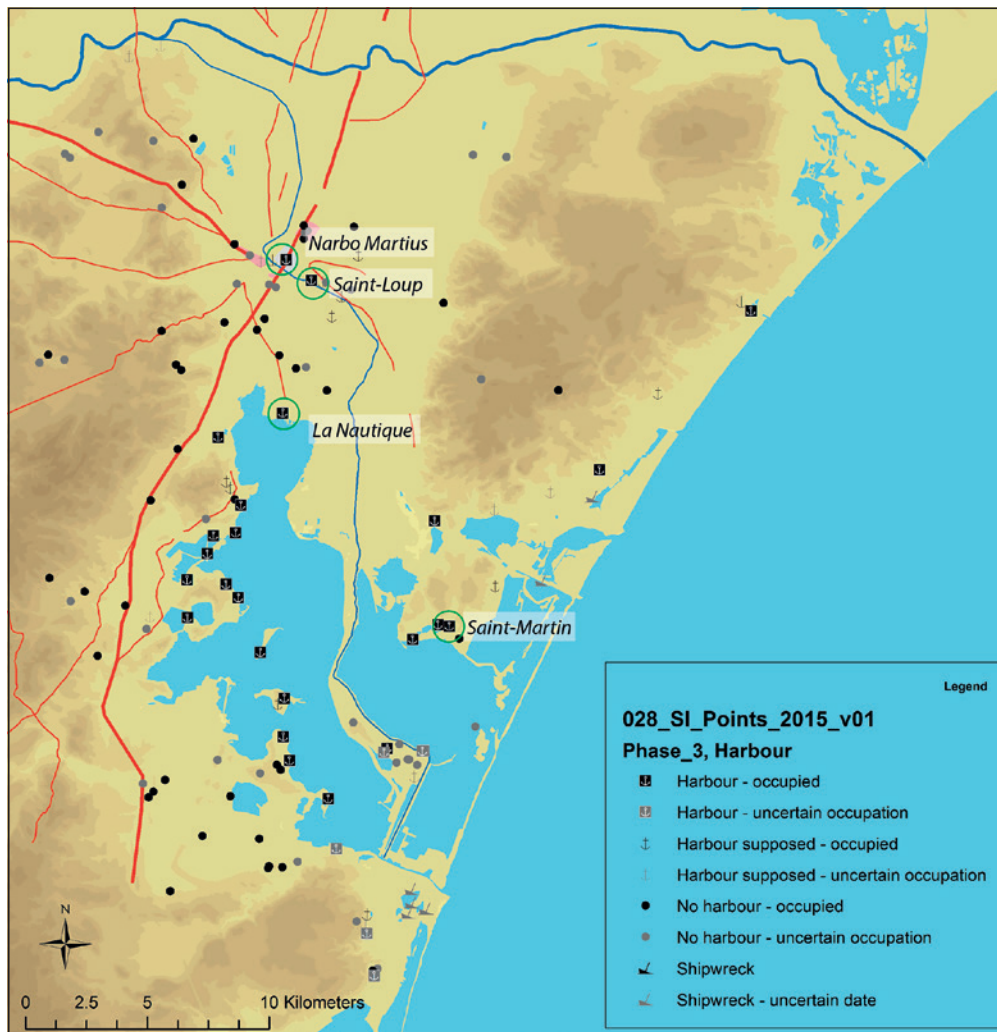


Fig. 6 Archaeological sites and harbours possibilities in the area of Narbonne (phase 3: Augustan 27 BC - 14 AD). – (Map N. Carayon).

tury BC, the site of **l'Illette**¹⁴ has been interpreted as an Italian settlement. It is known from an archaeological watching brief, with material dating from the first quarter of the 1st century BC and with 100 % of the amphorae originating from the Italian peninsula, the fineware dominated by Campanian A and B productions¹⁵. The presence of considerable amounts of bronze, lead and iron slag suggests that a metalworking site was also present. The site is located on an ancient island, indicating that the imports were offloaded onto a landing stage.

Traces of occupation are almost unknown in Narbonne until the Augustan period. Excavations at **La Médiathèque**¹⁶ have uncovered ditches dating to the first part of the 1st century AD demonstrating that this site was located in the periphery of the colony. The material found within these features is very rich. It dates to the 1st century BC and can be related to a trade area close to the river or the canal which could have acted as a harbour. During the first phase of the site, dating to between 75 and 60 BC, amphorae represent 75 % of the ceramics found. The Italian amphorae account for 81 % of all pottery, while Punic and Punico-Ebusitanian amphorae were also present, as were the first imports of amphorae from Baetica and Tarraconensis. The fineware assemblage is characterized by the dominance of thin-walled ware (41 %) and, in equal proportion, Campanian A and B. The second phase (from 60 to 50 BC) can be distinguished by the appearance of imitation Campanian A, the predominance of the so-called Celtic fineware and the strong presence (20 %) of »*pre-sigillata* Gauloise«, thereby illustrating the importance of the local production at this time.

The mid-1st century BC is marked by two major events: the definitive abandonment of the *oppidum* of Montlaurès at around 50 BC and in Narbonne a second *deductio* of veterans of the 10th Legion took place. The relationship between these two events is not defined, but the consequence is clear: henceforth, the colony remained the only urban settlement in the area.

Phases 3 and 4 of La Médiathèque from 50 to 30 BC witnessed the area being drained and the establishment of alignments of amphorae and other water features¹⁷. The associated finds illustrate a phase of transition, with the increase of local *pre-sigillata* and Celtic fineware. We can also observe the presence of some amphorae from Tarraconensis and some from the Greek mainland, Africa and the Adriatic Sea with one fragment from Brindisi.

PHASE 3: AUGUSTAN (27 BC-14 AD)

The Augustan period ushers in great changes at Narbonne. In 22 BC Augustus made the city the capital of the Roman province of Gallia Narbonensis. The area of La Médiathèque became an integral part of the built-up area of the city with the establishment of a street and three *domus*¹⁸. The finds evidence reveals significant changes in the pattern of imports to the colony. The most representative is the dominance of the amphorae from Tarraconensis and the strong proportion from Baetica while Italian imports decline considerably. The first monumental and public buildings appear during the Augustan period with the complex identified as the »Capitolium«, the forum and the so-called *horreum* or *cryptoporticus*.

Around and within the lagoon, the number of sites increases just a little from 126 to 130 sites, some 40 % of which may have functioned in some way as harbours (fig. 6). The first port facilities known in the area are Augustan and are to be found at Saint-Loup just downstream from Narbonne, and at La Nautique, 4 km south of the city. The excavations at Saint-Loup¹⁹ revealed one bank of a waterway as well as a quay wall and a canal dated to the Augustan period. It seems clear that a man-made waterway crossed the Augustan colony of Narbo Martius and was used as a harbour. There is no information about the canal upstream at Saint-Loup, but the distribution of Roman material suggests that there was a gap of 150 m between both sides of the modern Canal de la Robine. This feature may have been the high-water channel of the waterway running through Narbonne.

Several structures have been uncovered at La Nautique since the beginning of the 20th century, and all of them date to the Julio-Claudian period (30 BC-60/70 AD). During the 1990s, the discovery of a landing stage linked to the shore by a wooden causeway²⁰ led many scholars to interpret the site as the principal port of Narbonne at the end of the 1st century BC and for much of the 1st century AD, even though it is obvious that a single landing stage could not have been the only harbour associated with the »emporion of all Gaul«. Nevertheless, this discovery allows us to locate one harbour area at La Nautique where ships might have docked. The site is also a place where exports were assembled, as is suggested by the discovery of a dump filled with South Gaulish *terra sigillata* from La Gaufresenque in Millau (south of the Massif Central). Many of the ceramic vessels discovered here had not actually been used and must therefore have formed part of a place where they were sorted before being exported by ship. Imports are also attested. The Augustan material, which came from an underwater trench excavated in the neighbourhood of the modern port, is dominated by amphorae from Tarraconensis and Baetica. Storage activity is well attested by two big warehouses (c. 100 m long and 30 m wide) excavated in 2010 by O. Ginouves, and in which *dolia* were found *in situ*²¹. This suggests that wine was stored in bulk, either upon importation, or prior to export. The production of ceramics is also attested by two large kilns. The larger of the two was discovered along the west wall of the warehouse and measured 8 m × 8 m²². Finally, a very impressive circular *piscina* with its summer

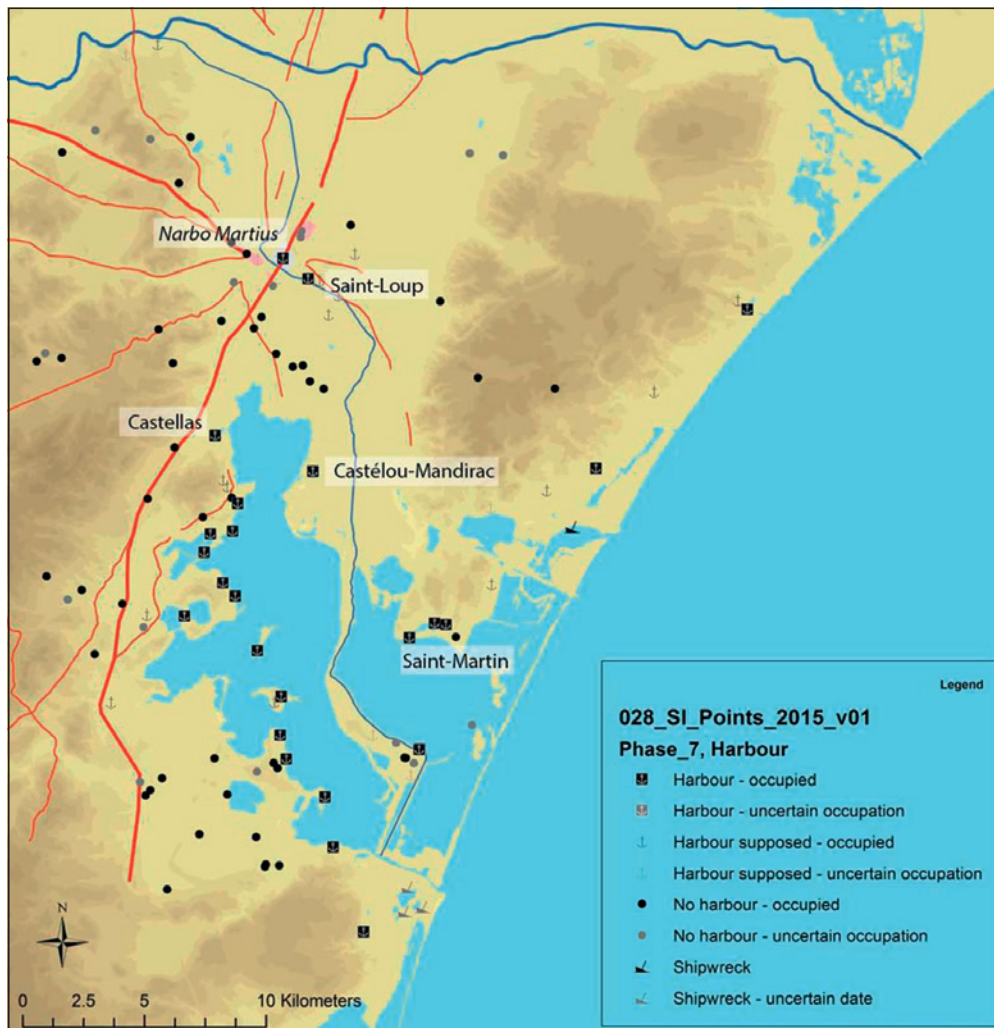
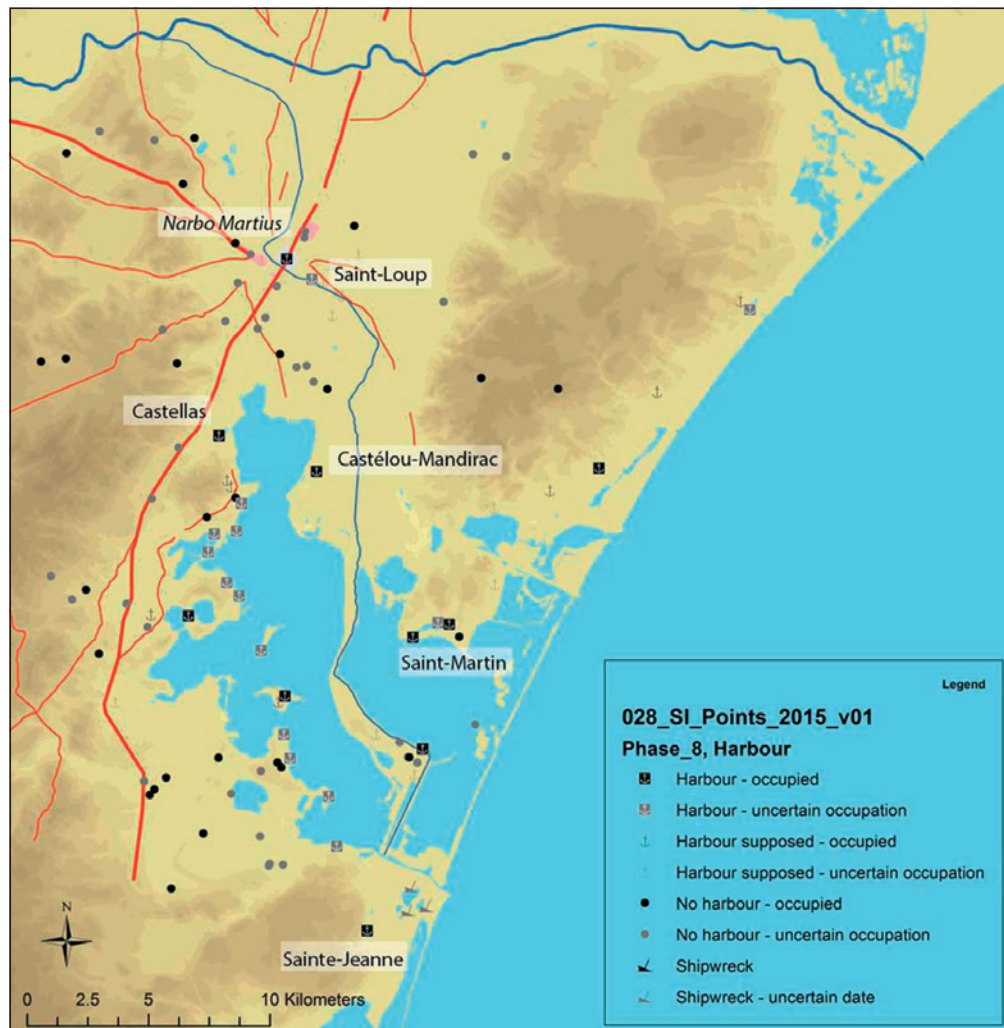


Fig. 7 Archaeological sites and harbours possibilities in the area of Narbonne (phase 7: Antonine 138-193 AD). – (Map N. Carayon).

triclinium was uncovered 400m west of the previous structure²³. This structure was built around 30 BC and abandoned in 10 AD. Among the numerous fish bones discovered within the fill of the basin the moray eel was the most represented. A small wooden tank filled exclusively with oysters stored *in vivo* within the basin was also excavated. This structure was clearly a manifestation of *luxuria*, the function of which needs to be understood in relation to the leisure activities of its owner; the »Grotta di Tiberio« at Sperlonga²⁴ is a possible parallel. These structures were built around 30 BC and shared the same orientation. Since similar examples of this kind of structure are linked to *villae maritimae*, it seems likely that the site of La Nautique was originally associated with a site of this kind, even though the buildings have yet to be found. If so, then it raises questions about the nature of a number of other sites involved in harbour activities.

Saint-Martin was another island at the entrance of the lagoon upon which there was another important site²⁵. Its location would suggest that it was used for loading and offloading, but the remains of the actual harbour have yet to be found. It was occupied from the late 2nd century BC although the first building did not appear until the Augustan period. This consisted of a monumental complex built in 20 BC and organized around a central court and composed of one rectangular building constructed from ashlar blocks and two *thermae*. The nature of this complex is still unclear, but the material associated with it, which includes a steelyard, suggests that some kind of trade-related activity took place here. The location of the site at the entrance of the lagoon led the excavators to the suggestion that it might have served to control the movement of trade in some way. Two big cisterns found near the harbour basin could have been used to supply

Fig. 8 Archaeological sites and harbours possibilities in the area of Narbonne (phase 8: Severan 193-235 AD). – (Map N. Carayon).



the ships with freshwater. A lead caulking plate found in the area of the cisterns also attests to the repair of ships.

From the Augustan period onwards, the harbour system of Narbonne was structured around an optimization of the natural harbour potential offered by the surrounding landscape. **Diagrams 1** and **2** show clearly that the period witnessed a first break with the foundation of the colony of Narbonne in the 2nd century BC, with a sharp increase in the numbers of sites occupied and also in the numbers of harbours attested. The two major harbour sites of La Nautique and Saint-Martin are emblematic of this change. The city of Narbonne itself developed significantly at this time and the earliest infrastructure of its urban river port is known. The next major change came in the Severan period at the end of the 2nd and the beginning of the 3rd century AD, when the number of sites and possible harbours decreased significantly.

PHASE 5 TO PHASE 9 (14-300 AD)

No major change has been documented at Narbonne or its harbours for the Julio-Claudian period. La Nautique continues to see increasing numbers of imports until its abandonment between 60 and 70 AD. During the following periods (**fig. 7**), the major change in the harbour system was the canalization of the lower course of the River Aude. Recent geophysical survey and archaeological excavation in the area of

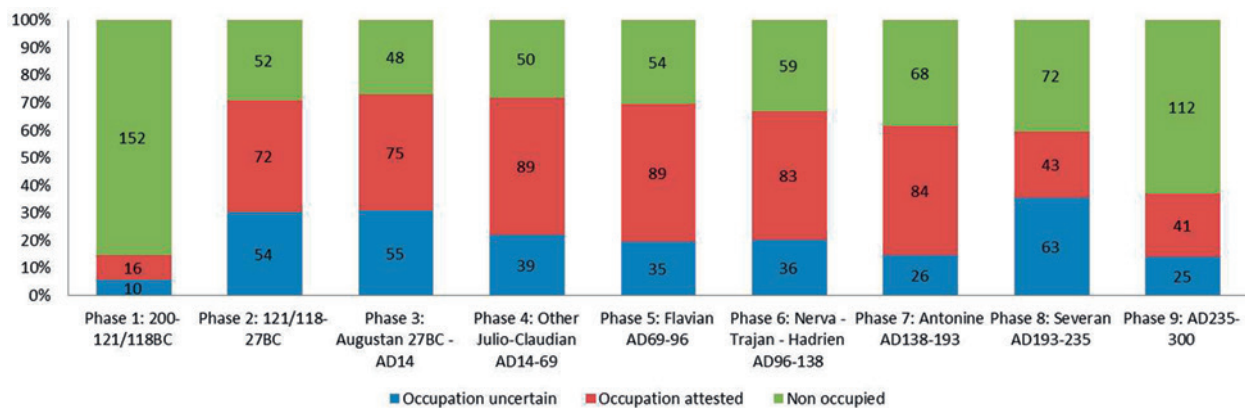


Diagram 1 Percentage and number of sites occupied by phases (total of 178 sites). – (Graphics N. Carayon).

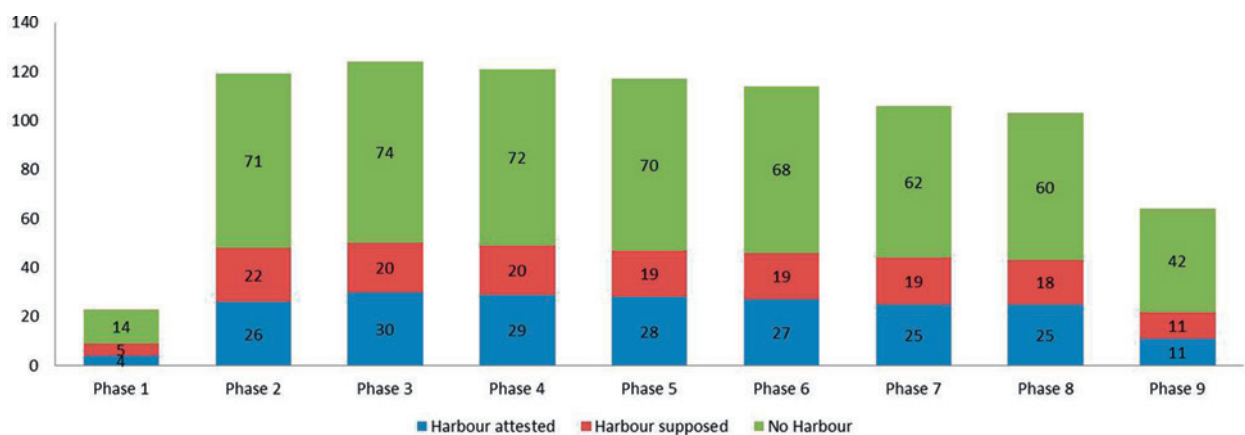
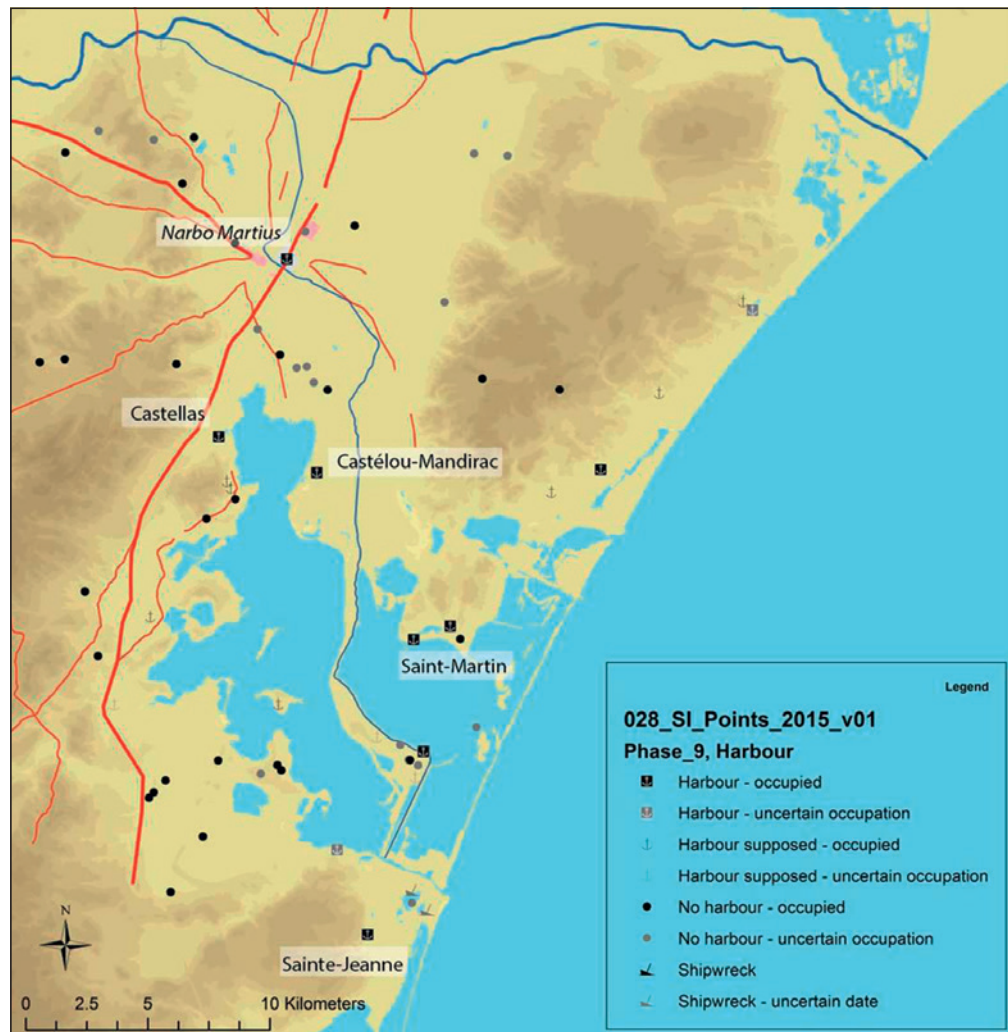


Diagram 2 Number of sites occupied with harbour possibilities by phases. – (Graphics N. Carayon).

Le-Castélou-Mandirac²⁶ have revealed the remains of two parallel dykes 2 km long as well as a breakwater built in order to protect the eastern dyke. The earliest remains, which were found on the northern side of the structure, date to the middle of the 1st century AD; the rest of the remains are from the 2nd century AD and continued in use until the 5th century AD. It is clear that the original purpose of this infrastructure work was to ensure continued fluvial access to the city of Narbonne and, thereby, to facilitate the transhipment of cargoes.

The harbour system of Narbonne remained stable in terms of its general occupation and the harbour potential that it offered until the Antonine period. The principal harbour sites of Saint-Loup, Castélou-Mandirac and Saint-Martin as well as all the small rural sites with their small harbours on the west bank of the lagoon remained in occupation. During the late 2nd and early 3rd centuries AD, the system clearly began to undergo changes (fig. 8). Even if the canal was maintained, the port site of Saint-Martin and Saint-Loup embarked upon a period of decline, as did all of the rural sites with harbour facilities on the west bank of the lagoon. The harbour system that had developed following the foundation of the *colonia* Narbo Martius came to an end during the 3rd century AD and is reflected in the abandonment of the more peripheral areas of the urban centre. While the canal of Le-Castélou-Mandirac was still functioning and provided maritime ships with access to the urban port of Narbonne, the other harbour sites around the lagoon and on the island and the islets within it were abandoned (fig. 9). The only significant lagoon sites still remaining in occupation were Saint-Martin and Sainte-Jeanne²⁷, both of which were probably able to control the access to the lagoon. It

Fig. 9 Archaeological sites and harbours possibilities in the area of Narbonne (phase 9: 235-300 AD). – (Map N. Carayon).



seems that at this time the organization of the harbour system changed from being very diversified, with many different kinds of sites involved in a range of activities, into a more centralized harbour system consisting of just a few sites.

CONCLUSIONS

To conclude we emphasize the concepts of harbour system and inner network of harbour-related sites. Obviously, the city of Narbo was a focal point of the harbour activities in south-eastern Gallia Narbonensis²⁸, and was also clearly a key node within broader networks of ports and terrestrial routes across the western Mediterranean. But between the city and the Mediterranean Sea was a harbour system based around the lagoon and the River Aude. Focused around this harbour system, as we have seen, were a large number of sites that played key roles as landing stages, storage areas and production activities. Our knowledge of the system as a whole implies an understanding of all these sites and the definition of their interrelationships. The »emporion of all Gaul«, as Strabo defines Narbo, was in fact a vast system, a local internal network organized around a huge natural water space and linked to the rest of the Roman world by the River Aude, the Via Domitia, the Via Aquitania, and sea routes across the Mediterranean itself.

Notes

- 1) Gayraud 1981.
- 2) Strabo 4, 1, 14.
- 3) Strabo 4, 1, 6.
- 4) Strabo 4, 1, 12.
- 5) Ambert 2000.
- 6) de Chazelles 2002.
- 7) Sanchez/Ginouvez/Kotarba 2011, 46.
- 8) Sanchez et al. 1998, 72 f.
- 9) Miéjac et al. 2011.
- 10) Chazelles 2002.
- 11) Sanchez 2009, 352-369.
- 12) Sanchez 2009, 77-106.
- 13) Miéjac et al. 2011.
- 14) Sanchez/Ginouvez/Kotarba 2011, 47 f.
- 15) Sanchez 2009, 106-119.
- 16) Sanchez 2009, 119-161.
- 17) Sanchez 2009, 119-161.
- 18) Sanchez 2009, 119-161.
- 19) Ginouvez/Labarussiat/Pomarèdes 1992. – Sabrié/Sabrié/Solier 1992.
- 20) Falguera et al. 2012, 190-243.
- 21) Ginouvez et al. 2010.
- 22) Sanchez et al. 2010.
- 23) Sanchez/Jézégou 2014, 87-91. – Carayon 2011. – Carayon/Flaux/Sanchez 2012; 2013.
- 24) Lafon 2001. – Higginbotham 1997.
- 25) Sanchez et al. 2015.
- 26) Sanchez/Jézégou 2014, 55-76.
- 27) Sanchez/Jézégou 2014, 53 f.
- 28) Arnaud 2010.

Source

Strabo 1923: Strabo, Geography, volume II. Books 3-5. Translated by H. L. Jones. Loeb Classical Library 50 (Cambridge 1923).

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Summary

Within the framework of the ERC Rome's Mediterranean Ports project (FP7-IDEAS-ERC, project reference: 339123; <http://portulimen.eu>), and thanks to a partnership with the Collective Research Project: Les ports antiques de Narbonne (<http://pan.hypotheses.org>) (CNRS, UMR 5140 *Archéologie des sociétés méditerranéennes*), it has been possible to precisely define the harbour system of the colonia Narbo Martius between the late republic and the late antique period. This paper aims to reconstruct the development of this harbour system from the 2nd century BC to the first part of the 3rd century AD, taking into account the human occupation of the area and the artificial development of harbour activities. By applying the concept of harbour systems to the area of Narbonne, our understanding of one of the most important ports of the western Mediterranean, the »emporion of all Gaul« in the words of Strabo (4, 1, 6), becomes clear.

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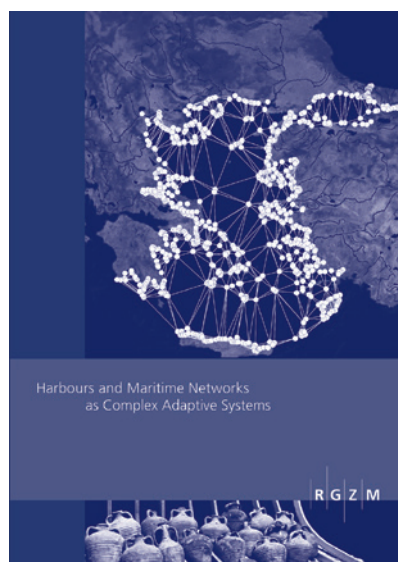
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