The urbanocene of Marseille's Vieux Port: a geoarchaeological perspective

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In memory of the archaeologists Antoinette Hesnard (1948-2018) and Henri Treziny (1948-2021)

Abstract

This chapter probes the rich history of geoarchaeological research in Marseille and its port. Three overarching themes will guide our exploration. (1) A comprehensive overview of geoarchaeological endeavors since the pivotal discovery of "Caesar's galley" in 1864. (2) A description of the evolution of Marseille's shorelines, its port and the broader interior basin, shedding light on human impacts, soil erosion and the evolution of viticulture. (3) Identifying and examining the current challenges and opportunities that face geoarchaeological research in Marseille.

The Vieux Port is, without a doubt, the most symbolic landscape of Marseille. In the first half of the 19th century, the Vieux Port attained legendary status. Engravings and photographs from the time show a port full of tall ships (fig. 1), trading with colonized Africa and the rest of the world. In the face of such wealth, diverse and contradictory perceptions (Bertrand, 1998; Roncayolo, 1996, 2014), geoarchaeological research means it is possible to ask precise scientific questions about the making of this port city over the long-term, and in various geographical and historical contexts. Here, we probe the relationship between geoarchaeological research and our understanding of Marseille's urbanocene (Chwałczyk, 2020), by exploring the geoarchaeological and geohistorical roots of the urban fabric (Marriner and Morhange, 2007; Morhange *et al.*, 2016). We address two main topics:

– geoarchaeology of the urbanocene, namely ca. 3000 years of pollution and shoreline changes;

– geoarchaeology of the urban fabrics over the long-term.

Keywords: Demander aux auteurs au retour 2

1. Marseille's harbour sediments as archives to understand its urban history

We briefly recall some key elements regarding the site and situation of Marseille. Although Marseille affords mariners a natural port with exceptional nautical qualities such as significant depths of the water column and natural protection of the cove from swell and winds, access by land has long been complicated by the presence of small coastal chains surrounding its sedimentary basin, such as the Etoile chain, the Nerthe or the Calanques massif. The Vieux Port is framed by a great diversity of environments. The port itself is a palaeo-ria, still washed by the sea and not infilled by fluvial sediments (fig. 2). This former river mouth has crystallized Marseille's port life for centuries. It is around 600 BC that historians place the arrival of Phocaean settlers in this sheltered embayment protected from swell and storms by the promontories of Pharo and Fort St-Jean. In pre-Greek times, the shoreline of the *Vieux Port* differed in configuration to that of today. The coastline went further inland, touching the slopes of Moulins or Notre Dame de la Garde hills. Since 2600 years, societies have dramatically transformed the environment.

From the 1990s, under the leadership of the archaeologist Antoinette Hesnard, geographers and archaeologists have collaborated to investigate the

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history of the site. Relative sea level changes played an important role in mediating the advance or the retreat of the port's shoreline. If the shoreline advances while the sea rises, it is because the coastal area receives sediments eroded from the catchment area. The sediment archives became a source of interest to archaeologists and helped to write the history of human occupation of Marseille (Leveau, 1995). The Vieux Port's sediments shed light on both the morpho-bio-climatic and human histories of the city. Bio-sedimentological analyses are essential in reconstructing the history of land use, vegetation cover and the development of urban, peri-urban and rural spaces (Walsh, 2007).

2. Geoarchaeology of the urbanocene, 3000 years of shoreline changes and pollution

One of the surprises of the port archaeological excavations was the variety of the elucidated environments, not only over time but also within the same periods. For example, the shoreline of the Vieux Port was both a beach with or without artificial harbour facilities, a wooden or stone wharf. In sum, the geomorphological findings of 30 years of excavation of the Vieux Port have shed light on five different periods (fig. 3).

2.1. The Vieux Port: 6000 years of coastal changes

1. In the sixth millennium BC, the present-day squares of Jules Verne and Villeneuve Bargemon (dir. A. Hesnard) had not yet been drowned by post-glacial sea level rise (fig. 3A). Sea level was around 6 m below the present. A first marine facies transgressed this surface around 4500 cal. BC. On the east bank, under the current Place de Gaulle, the first transgressive marine muds are contemporary. The evolution of the coastal landscapes was largely the same for all the coasts of the Lacydon area, consistent with the end of the post-glacial transgression.

2. From the late Neolithic to the Greek colonization (ca. 600 BC, fig. 3B), the north shore was characterized by a slow submersion and the coastline evolved almost naturally.

3. It is only from 600 BC (fig. 3C) that the shoreline underwent both progradation and artificialization while the sea level continued to rise very modestly, by about 90 cm. This paradoxical geomorphological evolution, which caused the body of water to recede, is explained by human developments and a positive sediment budget of anthropogenic origin. The landscape was transformed from a natural cove to an urban port. The Early Anthropocene is manifested by a number of different proxies.

Figure 1: View of the Vieux Port of Marseille in 1852 by E. Baldus (collection P.-J. Texier, LAPMO, MMSH, AMU).

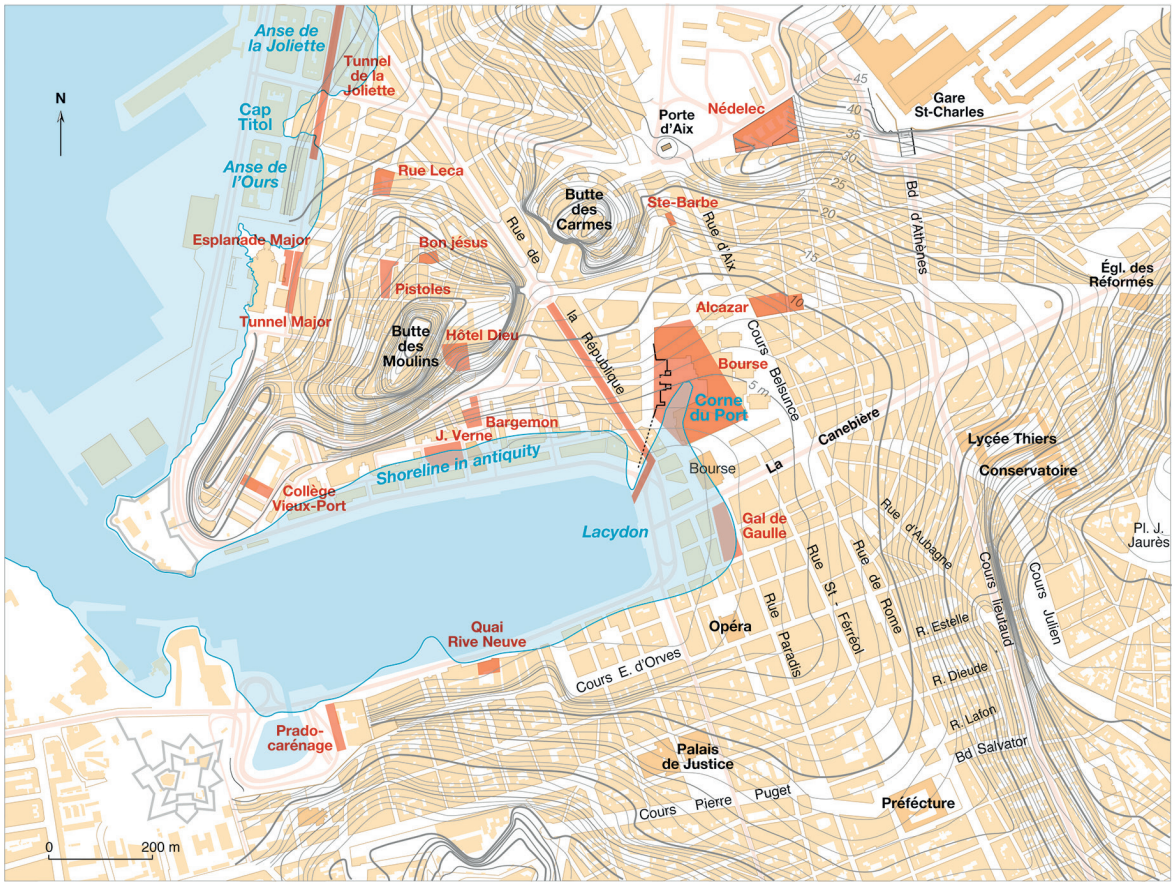

Figure 2: Map of the surroundings of the Vieux Port of Marseille and recent archaeological excavations. Maximum extension of the Vieux Port water body around 1000 BC (P. Pentsch).

– Granulometric impacts: the construction of port structures is recorded by fine-grained sedimentary facies, reflecting the artificial protection of the environments by port equipment such as quays or breakwaters. This port facies contrasts with the often much coarser pre-harbour and post-harbour sedimentary environments.
– Geomorphological impacts: the rapid aggradation of the harbour bottom led to an accelerated coastal progradation then a regularization of the shoreline, accentuated by man-made harbour infrastructures.
– Biological pollution: the modification of faunal assemblages reflects various processes such as anthropogenic pollution, often of organic origin, an increase in turbidity and the use of the basin for waste disposal over several centuries.
– Geochemical impacts: lead isotopes are a powerful tool for recognizing ancient metallurgical activities, with ancient ports proving to be particularly rich archives of palaeo-pollution. In Roman times, lead pollution levels were even higher than those measured in contemporary ports! Prior to studies at Marseille, little research had been conducted on metallurgical contamination in ancient harbours (Leroux *et al.*, 2005). Our objectives were to: (i) distinguish between natural and anthropogenic Pb in sediments, using Pb concentration and Pb isotopes, and highlight Pb pollution of metallurgical origin; (ii) estimate the general chronology of anthropogenic Pb inputs and; (iii) trace the sources of Pb trapped in the *Vieux Port* using the isotopic composition of Pb. In Marseille, we were able to demonstrate that 90% of the Pb during the Roman period was of anthropogenic origin. Since this pioneering study, many case studies have adopted a similar approach, for instance Véron *et al.* (2018) at Frejus and Delile in this book.

4. From the Hellenistic period, the shoreline was completely artificialized and landscape changes were linked to developments, which masked detrital fluctuations (fig. 3D to 3E). Thus, the 1st century of our era was characterized by a generalized dredging,

which brought the coastline very close to what it was during the two centuries which preceded. In the ensuing centuries, the built quays were then gradually clogged by sediments, so that in the 3rd century AD the coastline advanced. The shores of the port, at the end of the 4th century, were nothing more than a mudflat.

5. The Late Roman period (5th-6th centuries AD, fig. 3F) was characterized by a modest advance of the shoreline in the context of relative sea level deceleration. The northern shores (fig. 3G) of the port were completely artificialized by this time, in the form of embankments.

The banks of the Lacydon, therefore present a good example of morphogenic evolution of a coastline in the context of urbanization and increasing artificialization, a symbol of the Early Anthropocene (Morhange and Weydert, 1995). The anchorage haven's history is tightly linked to Holocene coastal changes. Land use and proximity to the city center played a key role in the supply and transport of sediment. For 2600 years, there has been no direct linear relationship between the sea level and changes in the coastline (transgression leading to submersion). The relationship between the rate of relative sea level rise and the rate of sedimentation and artificialization of the banks of the Lacydon, under the combined effect of anthropogenic factors, has been heavily influenced by human impacts.

2.2. Long-term pollution history of the Vieux Port

The first Neolithic settlements were located on the hills, notably at Saint-Charles where the discovery of a Cardial camp (Sénépart, 2010) testifies to the presence of agro-pastoral populations who exploited coastal resources, as attested to by the presence of limpets and winkles at the site. Vegetation clearances degraded the environment (Morhange *et al.*, 2003) leading to the accumulation of increasingly land-based sedimentation in the Vieux Port after 4000 years BP. This sediment supply derived from many small valleys (Nédelec, Joliette, Sainte-Barbe), which have now disappeared under the urban fabric, but which originally drained runoff water to the coastline. The construction of a city and a port based on a model imported from the eastern Mediterranean marked a fundamental break. Subsequently, the streets were paved, and urbanization increasingly waterproofed the surfaces. The local streams were transformed into sewage conduits transporting sediment and waste to the coastline. During the past 2600 years, the sediments of the port of Marseilles are archives of the history of the urbanization of the site. There are two major periods in the coastal morphogenesis of the Vieux Port.

1. The first environmental crisis took place during the Final Neolithic, about 4000 years ago. Progressive sedimentation and an anthropogenic deposit of oysters halted the development of an algal bioaccumulation of maërl. This biological crisis was linked to human occupation around the Vieux Port. There does not seem to be an erosive crisis on the hills. Indeed, since 6000 years BP, a maërl facies has characterized the bottom of Lacydon. This accumulation of calcareous algae is consistent with a shallow well oxygenated coastal bottom. The maërl facies disappeared from Lacydon around 2000-1700 cal. BC, more than a millennium before Greek colonization. This date suggests that anthropogenic pressures on the coastal environment were already strong from the Final Neolithic period onwards. Two dynamics explain the end of the maërl accumulation.

(i) Progressive silting up of the maërl facies, associated with relatively high turbidity, explains the end of bioaccumulation, which does not support fine sedimentation and requires a certain agitation and oxygenation of the sea. However, during the Late Neolithic and the Bronze Age, only modest volumes of terrigenous sediments accumulated in the harbour basin, which reflects insufficient human and agricultural occupation to cause a major erosive crisis in the catchment area. In Lacydon, the main center of activity seems to have been in the immediate vicinity of the coastline. This first phase of human impacts led to the first ecological crisis of anthropogenic origin, 4000 years ago.

(ii) The maërl layer is overlain by a deposit of oysters, mainly consisting of 70% shells. This layer of oysters sealed the maërl facies, which were deprived of oxygen and died. Only a few algae survived and developed, until around 600 BC. This layer of waste is of anthropogenic origin because the oysters are an open sea species (*Ostrea edulis* var. *lamellosa*), and Lacydon is not their natural biotope. Furthermore, there is a higher proportion of right to left valves. Under natural conditions, the left valves are fixed to the substrate and remain in place while the right valves are reworked by marine currents. The layer shows no orientation and is of variable thickness (Weydert, 1994).

This type of anthropogenic oyster deposit is quite frequent on Marseille's coast, during earlier periods. Coastal populations during the Late Neolithic and the Bronze Age thus profoundly modified the ecology of the north shore of the Lacydon. The "death" of the maërl, coinciding with a large deposit of oysters, reveals the extent of human impacts on the environment at least 1000 years before Greek colonization.

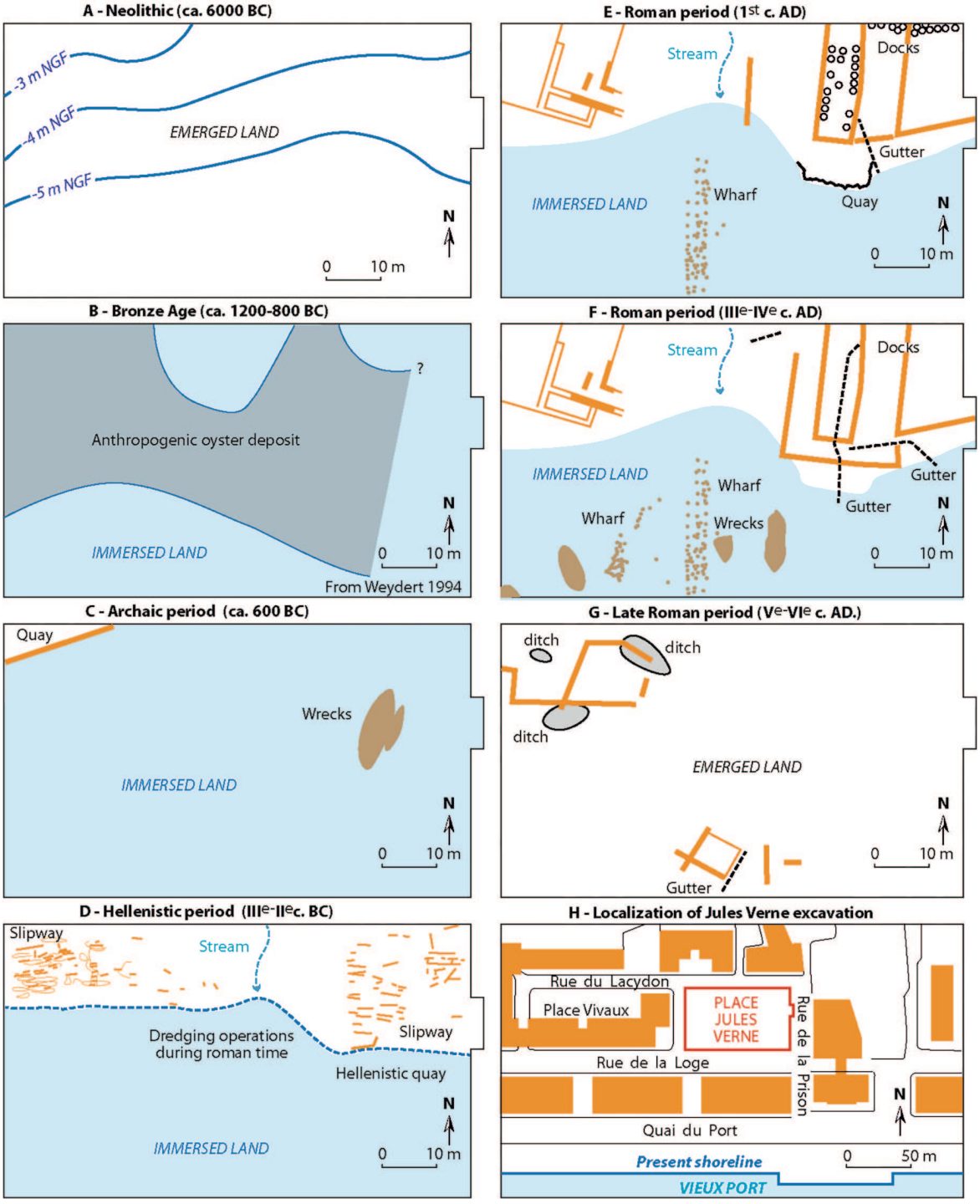

Figure 3: Coastal landscape changes. Archaeological excavation of Place Jules Verne in Marseille (adapted from Morhange *et al.*, 1995).

2. The north bank of the Lacydon experienced a second crisis following the colonization of Marseille in the 6th century BC. Human occupation of surrounding catchments led to marked coastal changes. The silts and clays, dating to the 6th-5th centuries BC, show very rapid sedimentation rates of around 1.3 cm to 1.4 cm per year. During the Roman period, the sediments are characterized by increasing levels of clay and silt, highlighting even more reinforced protection and accelerated siltation of the port. From the 1st to the 3rd centuries AD, the rate of sedimentation dropped to about ca. 0.35 cm per year, three times slower than during the Greek period, due to harbour dredging. This erosion crisis may be also part of regional climate change, which could have accentuated erosion at this time (Provansal, 1995). However, Greek colonization locally created the conditions for this erosive crisis to express itself. At Lacydon, the major environmental shift around 600 BC is therefore, largely a result of colonization and urbanization.

2.3. Palaeo-geography and geoarchaeology of ancient urban fabrics

This attempt to explore the geoarchaeological roots of Marseille's urban fabric has only been possible through rescue archaeology at multiple sites on the coastline over the past 30 years. These excavations have made it possible to study the evolution and the genesis of the ancient city through time. Here we present some geoarchaeological work that illustrates the diversity of rescue archaeology interventions in dense urban contexts, often under the auspices of INRAP.

Arnaud-Fassetta and Bourcier (1995) studied the metamorphoses of the rocky coast of the Joliette cove, at the foot of the western slope of the Butte des Carmes. This cove was bordered to the south by the cliffs of Cap Titol - a dozen meters high - and to the north by Cap du Lazaret (fig. 4). The bottom of the cove comprised the outlet of a thalweg, "the valley of the Ladies." Due to its general north-south orientation, this area was much more exposed to southwesterly swells and choppy northwesterly waters compared to the shelter of the Vieux Port. Arnaud-Fassetta and Bourcier (1995) highlighted four main phases in the evolution of the palaeo-environments (fig. 4). (A) The first sequence (before 6000 years cal. BP) corresponds to a sandy marine beach close to the mean sea level of the time. (B) The second sequence reflects the development of a freshwater swamp between 6000 to 1200 years cal. BP. The sedimentation rate is relatively fast in the Late Neolithic and the Bronze Age, reflecting relatively abundant detrital contributions followed by a reduction in the solid load during the last two millennia BC. La Joliette, on the outskirts of the city center, does not record the increase in detrital contributions linked to the development of the city as in the Vieux Port. (C) These marshy deposits are then transgressed by marine bioconstructions and sediments, which reflect the development of a well mixed infratidal environment and which experiences a regressive sedimentary dynamic. (D and E). Finally, La Joliette cove was artificially infilled in the 19th century for the development of a modern port and the urbanization of the north coast of the city.

On the south bank of the Lacydon, the quay of Rive Neuve was not significantly occupied until well into the Roman period, contrary to the north bank, which underwent early urbanization and accommodated the port from the archaic Greek period. Other differences are noted between the two shorelines. The stratigraphy is simpler in the south with a superposition of sedimentary bodies, corresponding to upper infratidal facies. A pebble layer has been identified at the top of the marly substrate. It constitutes an originally submerged landscape, dated to the end of the Bronze Age/beginning of the Iron Age. In facies and in age, it correlates with a sequence elucidated at Villeneuve-Bargemon (around 900-800 cal. BC). The absence of maërl on the south bank is probably explained by different environmental conditions, the shoreline being more exposed to the Mistral winds, currents and significant turbidity. During Roman Antiquity, there was a "morpho-anthropogenic" break in sedimentation with the construction of embankments allowing land to be reclaimed from the sea.

Core drillings from the Centre Bourse (dir. A. Treziny), at the eastern end of the Vieux Port, showed the existence of alluvial deposits above the Stampian age substrate, gullying it locally, testifying to a fluvial environment during protohistory (Scherrer and Chevillot, 2006; Provansal, 1995). These continental deposits were transgressed by the sea but the sheltered position of the Vieux Port led to a protected marine-lagoon environment, characterized by a muddy sand biocenosis. We tentatively associate this facies with the sequence studied at Place de Gaulle, where marine silts have been identified above the weathered Stampian substratum, testifying to a freshwater lagoon ecosystem dated between 4700-4200 cal. BC and 1400-1000 cal. BC at La Bourse. This environment gives way to fine dark clayey sediments, consistent with an acceleration of soil erosion. The facies is consistent with the development of a swamp, which lasted until the creation of an artificial dock at the end of the 1st century BC. This accommodated a large quay, which necessitated the deepening of the Stampian substrate. Six centuries later, urban dwellings expanded onto the infilled basin (Bonifay and Guéry, 1984). In this

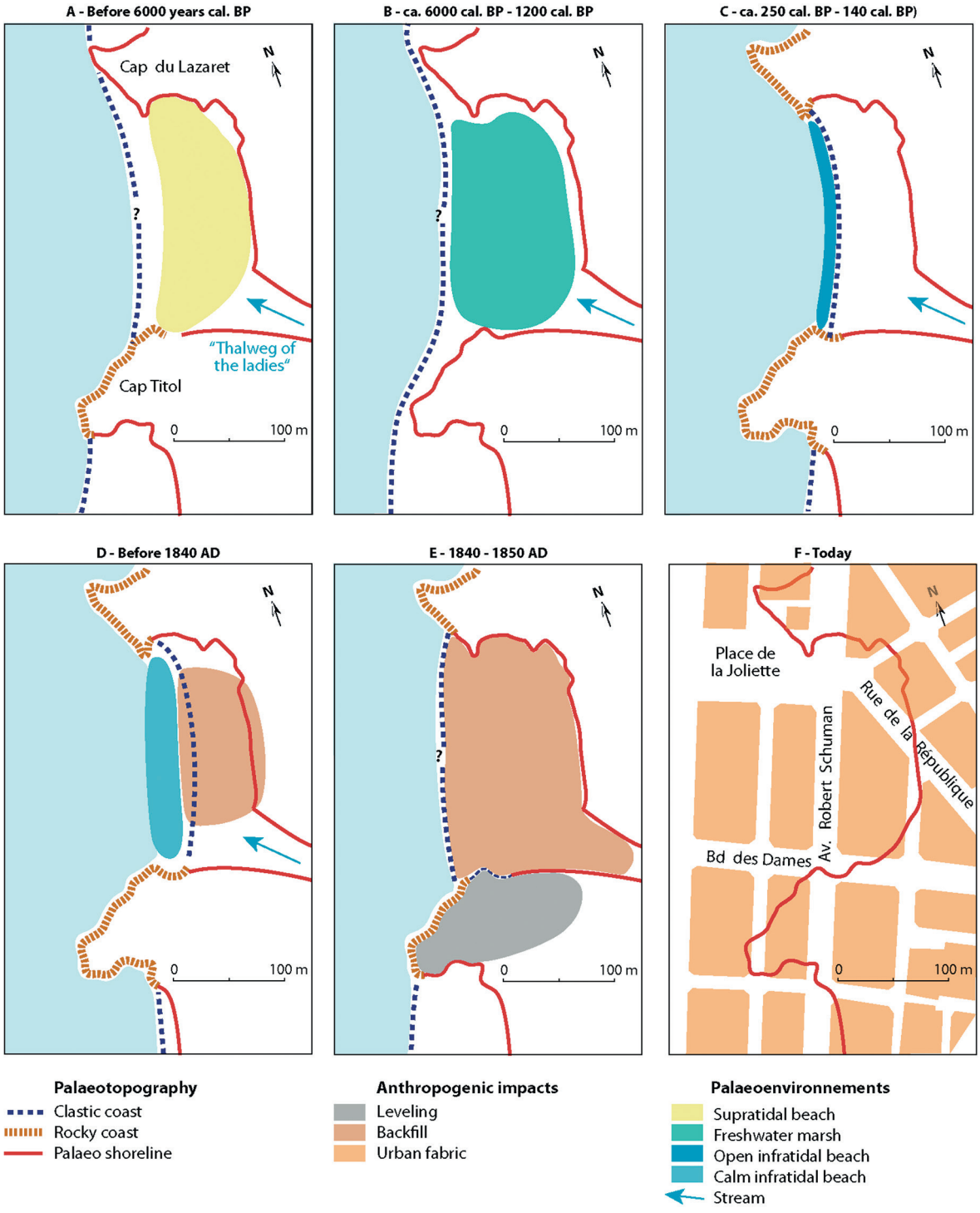

Figure 4: Metamorphoses of the Anse de la Joliette according to Arnaud-Fassetta and Bourcier (1995).

area, the progradation of the coastline was particularly rapid, which is clearly illustrated by the position of the La Bourse site in relation to the current marina (fig. 5). In a context of modest sea level rise, anthropogenic developments have been considerable. The study of the pottery points to several episodes of dredging along the western quay. A first phase is observed following the artificial protection of the basin until the second half of the 2nd century AD. Then, higher up in the sequence, a further phase of dredging is recorded but

this did not reach the bottom of the basin. It is still difficult to know if these were regular interventions undertaken during the 3rd and 4th centuries or if the basin was suddenly deepened during the 5th century (Pawlowicz, 2021), when a quay was constructed in the southwestern part. In order to clarify the environmental history and to better characterize possible ancient dredging, a new series of corings was undertaken. Bio-sedimentological analyses (texture, grain size, ostracods and molluscs) and radiometric determinations were carried out on the core BOU 8, located in the southwestern part of the port basin (fig. 6). The age-depth model, based on six radiocarbon datings, positions the sequence in a chronological framework between the 1st and 7th centuries AD. The granulometric analyses indicate a progressive closure of the environment, passing from an environment characterized by around 90 % sands to a predominantly muddy environment. Based on the age-depth model, this transition occurred at the beginning of the 1st century AD. Within this muddy sequence, we note the appearance of ostracods characterizing a significant supply of fresh, flowing water, demonstrated by the presence of oligohaline ostracod species such as *Sarscypridopsis aculeata* and *Potamocypris* sp. between the 1st and 2nd centuries AD, followed by a total disappearance of the microfauna, despite the presence of the same muddy matrix. The microfauna then reappears in a sandier sequence dated between the 3rd and 6th centuries AD characterized by oligohaline species, such as *Loxoconchidae* and *Xestoleberidae*, in association with the euryhaline species *Cyprideis torosa*.

One or more dredging phases can be identified by average sedimentation rates, which are both variable and high (from 0.95 cm/year to 14.2 cm/year between the 1st and 3rd centuries AD), supporting the necessity for such operations. It should be remembered that in Marseille, the ancient hydraulic installations had a major impact on the detrital contributions at base level, which raises the question of the water circulation around the Vieux Port and its evolution over time, as INRAP excavations at the rue de la République demonstrate.

In 2006, thanks to the construction of an underground canal passing under the rue de la République, in the northeast corner of the Vieux Port, two long archaeological surveys made it possible to observe the succession of port developments from the Classical Greek period to the present day. Particularly well preserved coastal sedimentary sequences were elucidated (Mellinand *et al.*, 2007; Sillano and Weydert, 2010). There were only three limestone blocks of the oldest quay remaining, 1.7 m below current sea level and dating to around the middle of the 4th century BC. The overlying sediments, typical of low energy infratidal deposits, have yielded pottery dating to the Classical Greek period, testifying to rapid siltation. A first Roman quay, built around 40-20 BC, was built above the stoned trench of the previous one. The very low colonization of the structure by rapidly developing marine species (barnacles) and the absence of boring sponges and lithophages suggest a relatively short lifespan that did not exceed a few decades. The water column was barely 1 m deep but was nonetheless sufficient for ships of the time. In the second half of the 1st century AD, a new quay replaced the previous one. It was recognized in five layers without its base being reached. These structures were rapidly silted up, a phenomenon accentuated by the configuration of the quays, perpendicular to each other. At the end of the 2nd century, the water column was only 1.2 m, then 0.6 m in the middle of the 3rd century, the northernmost quays were then abandoned and superseded by the *Samaritaine* quays. During the 4th century, beach sand definitively sealed an already partially recovered quay, and two centuries later, the Corne du Port was completely silted up. Around the 11th century AD, a surrounding wall, later incorporated into the fortifications of the convent of the Templars, marks the shoreline, which was displaced far to the south. During the 13th century, the shoreline shifted even further south where a quay was again built. This was still in use when the city was taken over by Louis XIV in the middle of the 17th century AD. In 1735, this quay was equipped with a landing stage, the Sainte-Anne palisade, built using the technique of poured concrete, a mixture of mortar and stones deposited between cofferdams, mentioned in 1741 by the port maintenance office. In the 19th century and then later in the 20th century, the quays were again displaced towards the center of the port, by nearly 20 m each time, marking the contours of the current Vieux Port (fig. 7).

Further upstream, the site of Alcazar (dir. M. Bouiron) is located at the foot of the southern slope of the Saint-Charles hill, at the bottom of a thalweg opening onto the Corne du Port. This low lying area has acted as a depocenter for many small local rivers. The marly substrate was excavated during the Archaic Greek period for the construction of ramparts and private dwellings. After its abandonment, between the 5th and the 1st centuries BC, part of the excavated pits evolved into swamps. Those located furthest west of the site, near the Lacydon, show the presence of freshwater to oligohaline, plant-rich ostracods (*Ilyocypris sp.*) associated with coastal benthic foraminifera (*Ammonia tepida*). This fauna testifies to a temporary communication with the sea, but with relatively low salinities. These coastal quarries were subsequently infilled with sediments from the dredging of the port.

Figure 5: Position of the Bourse site and the "corne du port" (in the foreground) in relation to the current Vieux Port (©Ph. Folio and L. Damelet, CCJ, 2008).

3. Conclusion: urban geoarchaeology as an indicator of global change and Marseille's lost archaeological heritage

Urban geoarchaeology can also furnish a more nuanced and precise assessment of the future vulnerabilities of urbanized coastlines over the long-term (Morhange and Marriner, 2010a). Two ongoing dynamics illustrate this research.

(1) Modest historical relative sea level changes (Pirazzoli, 1976; Morhange *et al.*, 2001).

Recent standardization work by Vacchi *et al.* (2016 and 2018) has yielded the following RSL values for Marseille:

2600 years BP (Greek colonization): 0.90 +-0.2 m below 0 NGF
2000 years BP: 0.65 +-0.2 m below 0 NGF
1000 years BP: 0.40 +-0.2 m below 0 NGF.

Nowadays, the 0 NGF is more than 10 cm below the mean biological 0, defined as the upper limit of the infratidal zone. In the past, therefore, societies experienced the effects of a multi-decimetric rise in sea level. While the sea level has never been so high in Marseille, the water area of the Vieux Port has paradoxically never been as reduced as it is today, a clear manifestation of the Early Anthropocene in an urban context.

(2) The rhythms of base level sediment budgets and the characterization of bio-facies and palaeo-pollution can serve as valuable markers of the Early Anthropocene during the past 4000 years. The Vieux Port and the sea have served as waste dumps. In modern urban contexts, with particularly high population densities, a geoarchaeological approach is a relatively rapid and low cost approach to explore good quality, but often overlooked, sedimentary archives even if dredging has often reworked parts of the sediment record sometimes leading to significant stratigraphic gaps (Morhange and Marriner, 2010b). For example, in Marseille, the seabed of the Anse des Catalans is covered with dredged deposits from the Vieux Port, containing numerous artifacts dated between the 6th century BC and the 17th century AD, i.e., more than two millennia of history. If the precise location of the initial archaeological site is difficult to establish due to the impact of the swell on the seabed, the scarcity of ceramic productions suggests

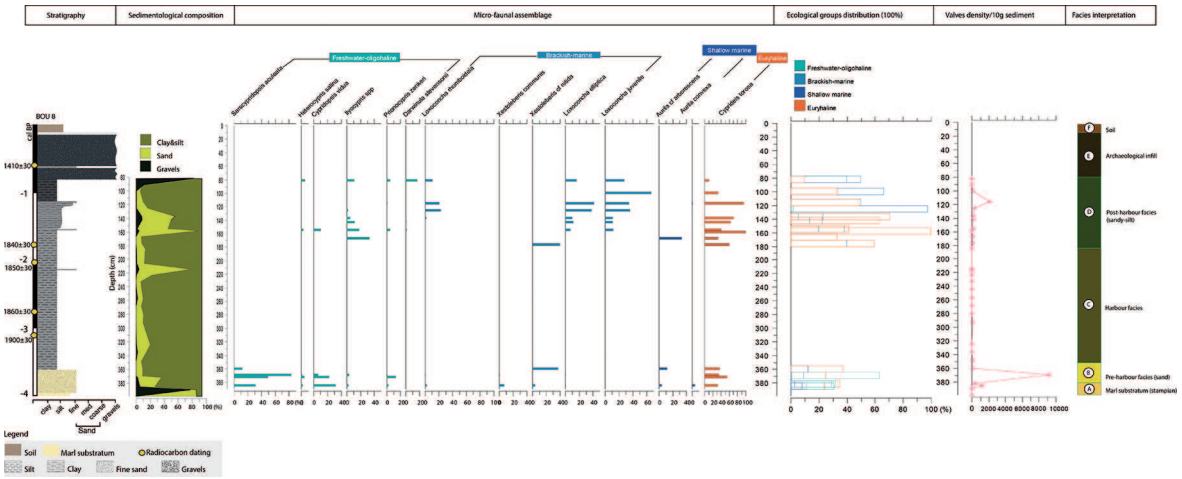

Figure 6: Sedimentology and ostracod biostratigraphy of the BOU 8 coring (Bivolaru, 2022).

a maritime area that is distant from the residential and central districts. The representativeness of this very varied pottery is the result of a series of selections. Waste dumps on the banks of the Vieux Port are linked to damaged cargo. These deposits can be attributed to quality control of goods on arrival and the cleaning of holds. Arbitrary sampling by dredging and their discharge into the Anse des Catalans was then applied a second time (Trèglia *et al.*, 2016).

This palaeo-environmental history of Marseille is neither static nor linear. It is characterized by a periodic temporality. It is for this reason that we believe that the polysemic concept of resilience, associated with the cyclical myth of the eternal "return", is unsuitable for the study of geoarchaeological trajectories, because this concept relates to time scales which are not directly associated with historical societies (Nicoll and Zerboni, 2020; Piégay *et al.*, 2020).

In the innovative scientific context of the 1990s, the enhancement of archaeological remains seemed to be essential in Marseille. Although successful with regards to the Jardin des Vestiges of the Centre Bourse, it was completely forgotten in the development of more recent excavations. The Jardin des Vestiges, located in the heart of the Bourse area, is a good example of the integration of archaeological heritage into a complex of large commercial areas, offices and hotel and restaurant services built in the 1970s and 1980s. Conversely, the Place de Gaulle corresponds to the roof of an underground car park. The upper slab has been treated in a very conventional way, in the form of lawns, paving and a metal fountain representing a slender ship, as a "clin d'oeil" to contemporary culture and ancient heritage. It is regrettable that the municipality did not ask the architects to render accessible part of the ancient heritage *in situ*. It is sadly the same for the squares of Villeneuve Bargemon and Jules-Verne, which encircle the Hôtel de Ville. Modern developments have totally obliterated the beaches on which Greeks and Celto-Ligurians met for the first time and the ancient port vestiges have been forever buried beneath concrete. This contrasts markedly with the ideology of heritage conservation, which has grown since the 1970s. The enhancement of the ruins is, in fact, conceived as a means of changing the image of the city and as a means of improving the quality of local living environments. Nowadays, Marseille is still sorely lacking in architectural landmarks from Antiquity and the Middle Ages, periods that significantly influenced the city's history. Once again, these constitute lost opportunities to create historical and archaeologically themed areas in the city center that would have contributed to the cultural influence of this city and changed its image (Tirone, 1995).

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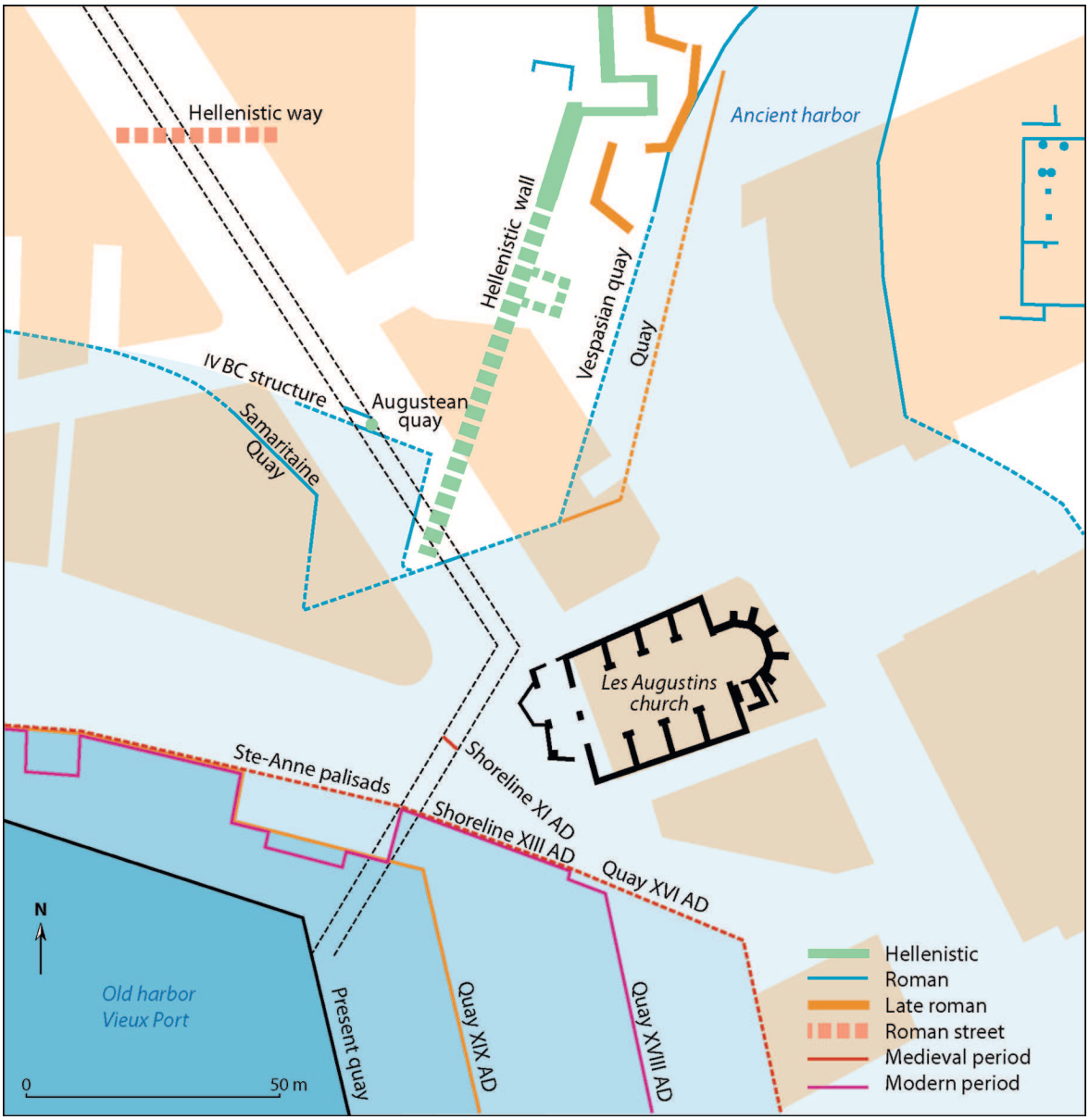

Figure 7: Plan of port structures revealed at the rue de la République (Sillano and Weydert, 2010).

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