

Villeneuve-d'Ornon (Gironde, France): A wreck from the early Middle Ages

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Abstract: The Villeneuve-d'Ornon wreck was discovered in 2013 south of Bordeaux, near the Garonne River. Its scientific interest led the DRAC Nouvelle Aquitaine to prescribe a preventive excavation, which was begun by Inrap in 2019. Initial observations indicate a robust boat, keel-built, adapted to transporting goods in coastal areas and riverine environments. Several radiocarbon dates provide a chronology between the second half of the 6th and the end of the 7th century. As the dismantling of the wreck could not be completed in 2019, a second operation is under way until September 2022.

Keywords: wreck, early mediaeval, Atlantic, France, Bordeaux

1. History of the discovery

The Villeneuve-d'Ornon wreck (Gironde, France, Fig. 1) was discovered in 2013 during an Inrap archaeological survey, in connection with a major real estate project on the banks of the Garonne River, a little upstream from Bordeaux. An initial radiocarbon dating quickly revealed the age of this boat (7th–8th century), while observations showed its strong scientific potential (Fig. 2): good conservation of the wood, presence of fittings, general quality of the construction.... All of these clues led the Ministry of Culture to prescribe a preventive archaeological excavation to clear the wreck and remove it. The initial intervention, carried out by Inrap, took place from August to November 2019.

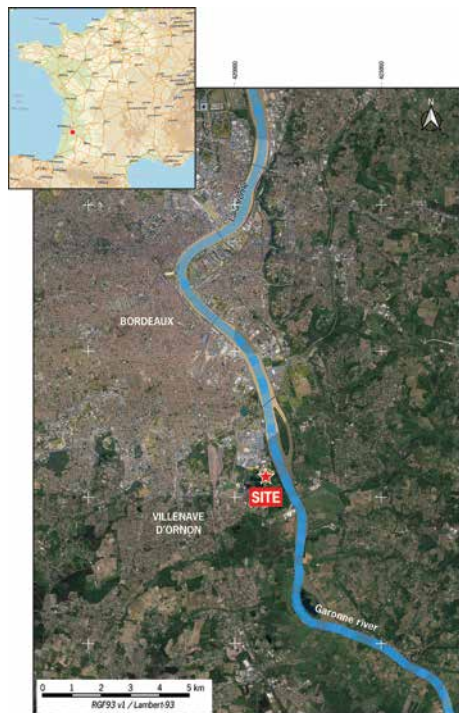


Fig. 1 General location of the site
(author: L. Grimbert, Inrap)



Fig. 2 Discovery of the wreck in 2013
(photo: Ch. Dunikowski, Inrap)

2. General and stratigraphic context

The intervention area corresponds to an ancient marshy area (*palu* in local dialect), crossed by tributaries (*estey*s) perpendicular to the Garonne. These marshy areas, very fertile and rich in resources, correspond to very ancient biotopes, regularly drowned by the floods of the Garonne. Their development is attested since Gallo-Roman antiquity and throughout the Middle Ages and the modern era. Historically present throughout the Bordeaux region on both sides of the river, these areas of marshland, partly protected by European regulations (Natura 2000), are shrinking due to the very high level of urbanisation in the sector, which is gradually causing the last remnants to disappear.

The wreck is buried in the old, clogged bed of the Lugan *estey*, a lateral tributary of the Garonne on the left bank, whose current bed, very reduced compared to its ancient width¹, is located some 10 m south of the position of the wreck (Fig. 3). The old northern bank of this tributary, observed during the 2013 diagnostic phase, has a gentle slope on which the bow of the boat partially rests. The boat is sunken in a grey-blue clay sediment, which corresponds to its progressive silting up (flooding of the Garonne and daily input of sediment by the tides whose influence is felt up to here). The level at which the wreck appeared is very close to the current surface of the land, only 1.30 m deep. The proximity of the water table, outcropping in this particular sector, explains the very good preservation of the boat.

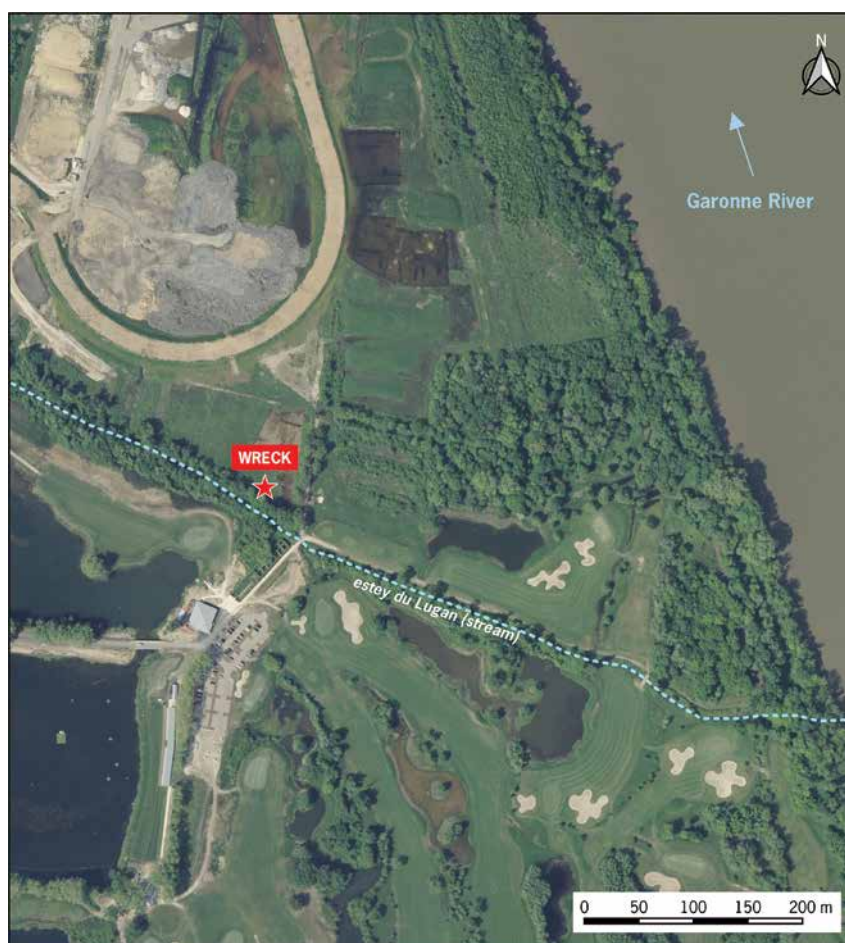


Fig. 3 Aerial view of the wreck area (author: L. Grimbert, Inrap, Google)

3. Architectural elements of the wreck

The 2019 excavation confirmed a remarkable state of preservation of the boat, preserved over a length of 11.20 m, a width of 5.90 m and a height of 1.60 m (Figs 4 and 5). Part of the stern is destroyed over a presumed length of 3 or 4 m, which would restore a boat of an initial length of about 15 m. The reasons for the absence of this part of the wreck have not been identified, but the presence of traces of cutting on the visible part of the keel proves that this is an old phenomenon (a choice to recover some of the elements before the wreck was completely buried?).

¹ The current Lugan stream is less than 1 m wide and looks more like a ditch than a perennial stream bed.



Fig. 4 General view of the wreck (photo: P. Ernaux, Inrap)

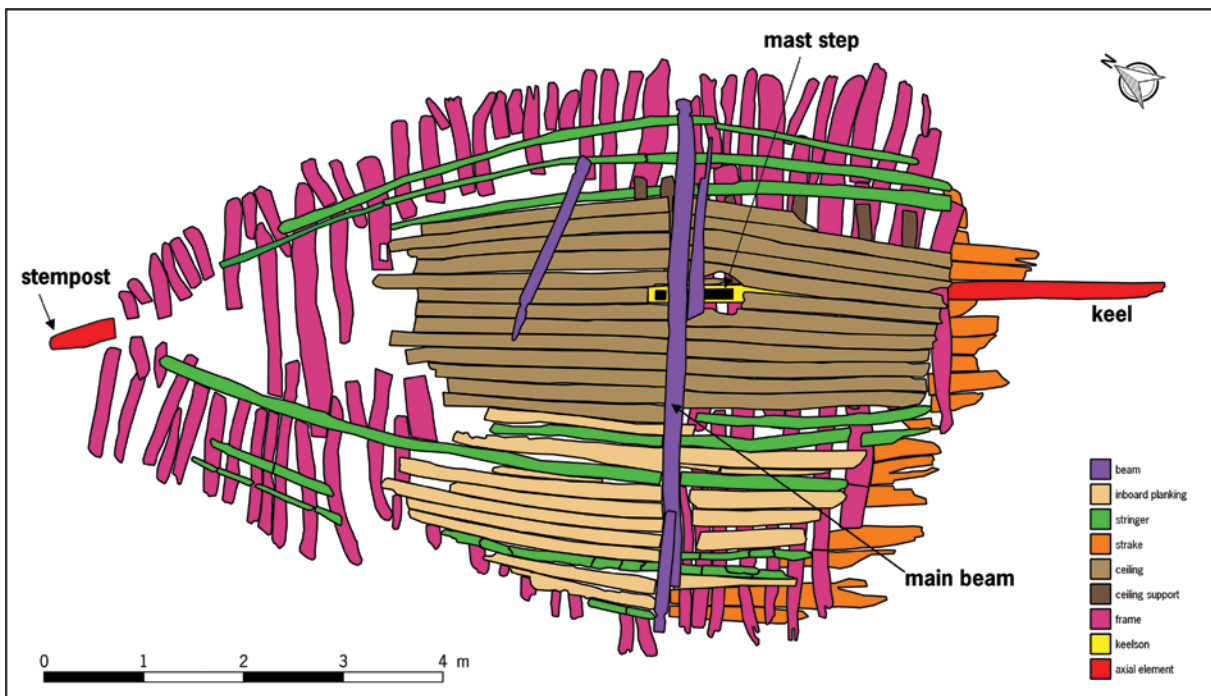


Fig. 5 Plan of the wreck's elements (drawing: L. Grimbert, Inrap)

All the structural elements were observed in a precise manner (keel, planking, ceiling, mast step, beams, etc.) as well as the connections between the elements, mainly by treenails (Fig. 6), but numerous iron nails are also present, particularly at the connections of the important structural parts (stempost, keel, keelson, stringers). Nails were also used for the ceiling.



Fig. 6 Detail of the treenails in the starboard frame (photo: P. Ernaux, Inrap)

Initial macroscopic examinations² carried out *in situ* on some twenty elements of the frame identify ash and oak as the main woods used; only the ceiling planks are made of softwood.

Observation of the strakes on the aft part of the wreck shows that they were carvel planks. The garboard strake is joined to the keel by ‘coaks’ spaced about 0.60 m apart, while the second strake is joined to the garboard by small unpegged tenons, placed in mortises in the edge of each of the strakes.

The frames are made of alternating curved floor timbers and futtocks. At least 74 frame elements, with an average thickness of around 10 cm, were counted but it was not possible during the intervention to observe the presumed join between the floor timbers and the keel. Two characteristics of the frames should be highlighted: on the one hand, their irregular morphology and rough shaping; on the other, their variable rooms.

The scarf between the stem and the keel could not be visually observed but appears to be at the location of a large nail driven vertically through a frame. The preserved ends of the keel and stempost are marked by the presence of hook scarf slots showing the connection of other elements.

The restored lengths of these elements of the longitudinal framework, also made of oak, would be 2.60 m for the stempost and 8.60 m for the keel. The mast step would be 2.90 m long, with a notched underside to secure it strongly to the frames. The mortise of the mast step is 44 cm long and 9 cm wide. The bottom is partially sloped to allow the mast to be set in place.

The main beam, 4.85 m long, was still in place in the centre of the wreck, crossing the port planking but disassembled from the starboard planking, which explains the collapse of the port side. Despite the good preservation of the wreck, the upper parts are missing, which makes it impossible to be certain of the presence of a deck. However, there is archaeological evidence, to be confirmed in the forward part (possible presence of stanchions), which suggests that this type of arrangement (deck or half deck) could be present. Very few elements linked to life on board have been found for the moment. The main ones are fragments of ropes made of plant material, discovered on the ceiling of the bow section of the wreck.

4. Analysis

The architectural study leads to the restitution of a robust boat (wide, numerous and close frames) adapted to the transport of cargo that can be loaded in bulk (grain, salt, stones, etc.) as attested by the presence of a bottom ceiling. This vessel could navigate in both river and maritime environment due to its keel construction, relatively wide and flat bottom. But does it represent a boat exclusively for coastal navigation or long-distance shipping? The new radiocarbon dates carried out in 2019 and the ceramic material taken from the wreck confirm that the wreck dates to the early Middle Ages (second half of the 6th–end of the 7th century).

This discovery therefore constitutes a significant link in the fluvio-maritime shipbuilding techniques of this period and highlights several characteristics. The join of the first carvel planks by ‘coaks’ (garboard/keel) and unpegged tenons/mortise (garboard/second strake) allows us to glimpse a technological evolution, or rather a possible change with the progressive abandonment of ancient Mediterranean ‘shell first’ maritime shipbuilding traditions. But the Atlantic environment of the discovery also raises the question of the relationship with the so called ‘Romano-Celtic’ tradition of shipbuilding and its ‘frame first’ or ‘proto skeleton first’ method.

The lack of archaeological discoveries of wrecks from this period and this type of shipbuilding techniques on the Atlantic coast gives the Villenave-d’Ornon wreck a real importance that contribute to improving our knowledge of this type of shipbuilding. One of the very few regional wrecks from the early Middle Ages identified on the Atlantic coast is the Port Berteau wreck, located in the Charente River (Charente-Maritime) and dated to the early 7th century AD. Ongoing studies will highlight similarities and/or differences in the construction methods of these two boats.

The start of the paleo-environmental studies confirms the existence of the clues necessary for a better understanding of the Villenave-d’Ornon wreck’s environment. The carpological analysis of the plant remains located in the sediment filling the rooms of the aft frames has revealed the presence of endemic Mediterranean species. How to interpret these plant remains? Could they correspond to a hypothetical navigation area, or more probably to the nature of one type of cargo?

² Observations by Didier Pousset, archaeodendrologist.

In 2019, in parallel with the excavation of the wreck, an important ancient occupation (*villa?* 1st century AD) was identified in this sector on the banks of the Garonne. However, no contemporary occupation near the wreck's location is known, which limits the analysis of its presence in this area (small *estey* port? stranding? abandonment?).

5. Research perspectives

In 2019, major technical safety constraints, in conjunction with very unfavourable weather conditions, prevented the complete dismantling of the wreck that was initially planned. Continuing the work in winter would only have led to the deterioration of the wreck, which is why the decision was made to interrupt the work. Only 10% of the wooden parts (scattered parts, main beam, bottom ceiling of the aft part) could finally be removed and transported by truck to the laboratory in charge of their conservation (Arc Nucléart, Grenoble, France).

To avoid degradation of the wreck, it was protected by geotextile and sand before being re-buried in December 2019. After a two-year interruption, the operation is to be resumed in 2022, with the aim of removing the entire wreck while addressing, as the dismantling progresses, the many questions left unanswered in 2019: method of caulking or luting the strakes, process of construction and assembly method (shell first? skeleton first? proto skeleton first? mixed?), presence of upperworks, internal fittings and divisions, repairs, etc.

The continuation of environmental studies (carpology, palynology, geomorphology) is also planned in order to better understand the close environment of the wreck, its possible navigation area, and the possible nature of its cargo. Finally, a conservation and museographic presentation project is currently being studied so that, in the long term, the early medieval ship from Villenave-d'Ornon can be reassembled and presented to the public.

References

- Dunikowski, Ch. 2015. *Villenave d'Ornon, phase 3, zone nord, Geneste Courréjean*, rapport de diagnostic archéologique. Inrap, Bègles.
- Grimbert, L. 2022. *Nouvelle-Aquitaine et Outre-Mer, Gironde, Villenave d'Ornon, Geneste*, rapport de fouille archéologique. Inrap, Bègles.
- Rieth, E. 1986. Bilan des recherches d'archéologie navale dans le domaine atlantique au Moyen Âge. In: *L'Europe et l'Océan au Moyen Âge; Contribution à l'Histoire de la Navigation, Actes des congrès de la Société des historiens médiévistes de l'enseignement supérieur public, 17^e congrès, Nantes, 1986*. Nantes, Société des historiens médiévistes de l'enseignement supérieur public: 201–210.
- Rieth, E. 2008. Géométrie des formes de carène et construction "sur membrure première" (Ve-XIIIe siècles). Une autre approche de l'histoire de l'architecture navale méditerranéenne au Moyen Âge?. *Archaeologia Maritima Mediterranea* 5: 45–68.