

(a)



(b)

Figure 1. a) The Black Sea and the Sea of Azov with the location of Phanagoria (map IA RAS); b) View of the archaeological area of the ancient city of Phanagoria (photo IA RAS).

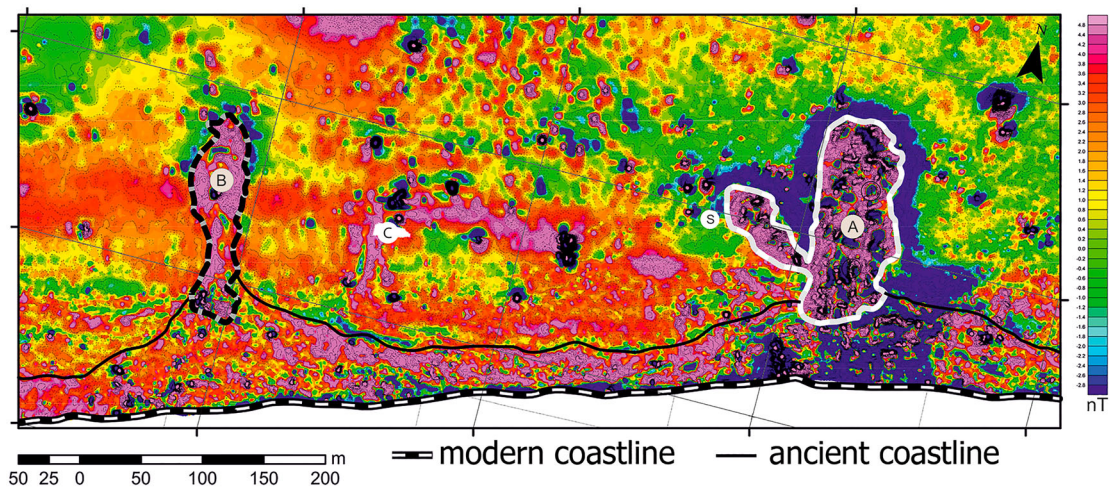


Figure 2. Geophysical survey of the submerged zone in front of the ancient city of Phanagoria: A) eastern pier and the adjacent stone embankment (5th–4th c. BCE); B) western pier (dating unknown); C. Roman structure; S. the shipwreck (map A. Luchnikov).



Figure 3. View from the NE of the layer of stones and fragments of roof tiles covering the bottom of the ship and the port side (photo S.V. Olkhovskiy, IA RAS).

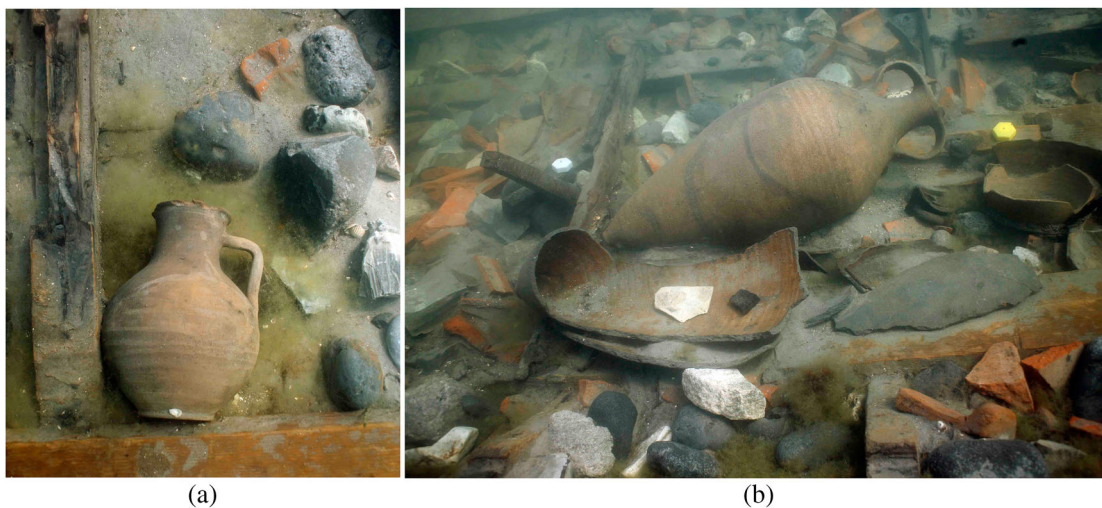


Figure 4. The findings *in situ*: a) jug; b) Colchian amphora (photos S.V. Olkhovskiy, IA RAS).

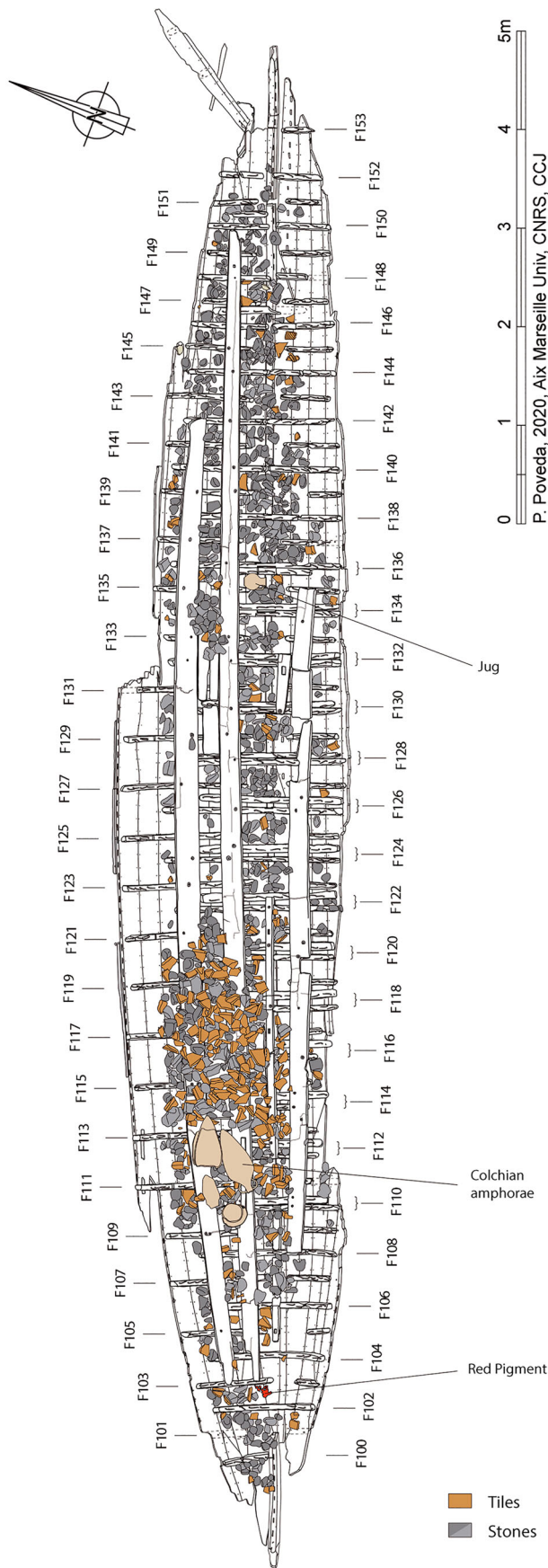


Figure 5. The shipwreck of Phanagoria with the ballast and the location of the finds (drawing P. Poveda, CNRS/CCJ).



(a)



(b)

Figure 6. The shipwreck without its ballast: a) view from SW; b) detailed view of the port side from the SE (photos S.V. Olkhovskiy, IA RAS).



Figure 7. The bronze casing of the ship of Phanagoria (photo S.V. Olkhovskiy, IA RAS).

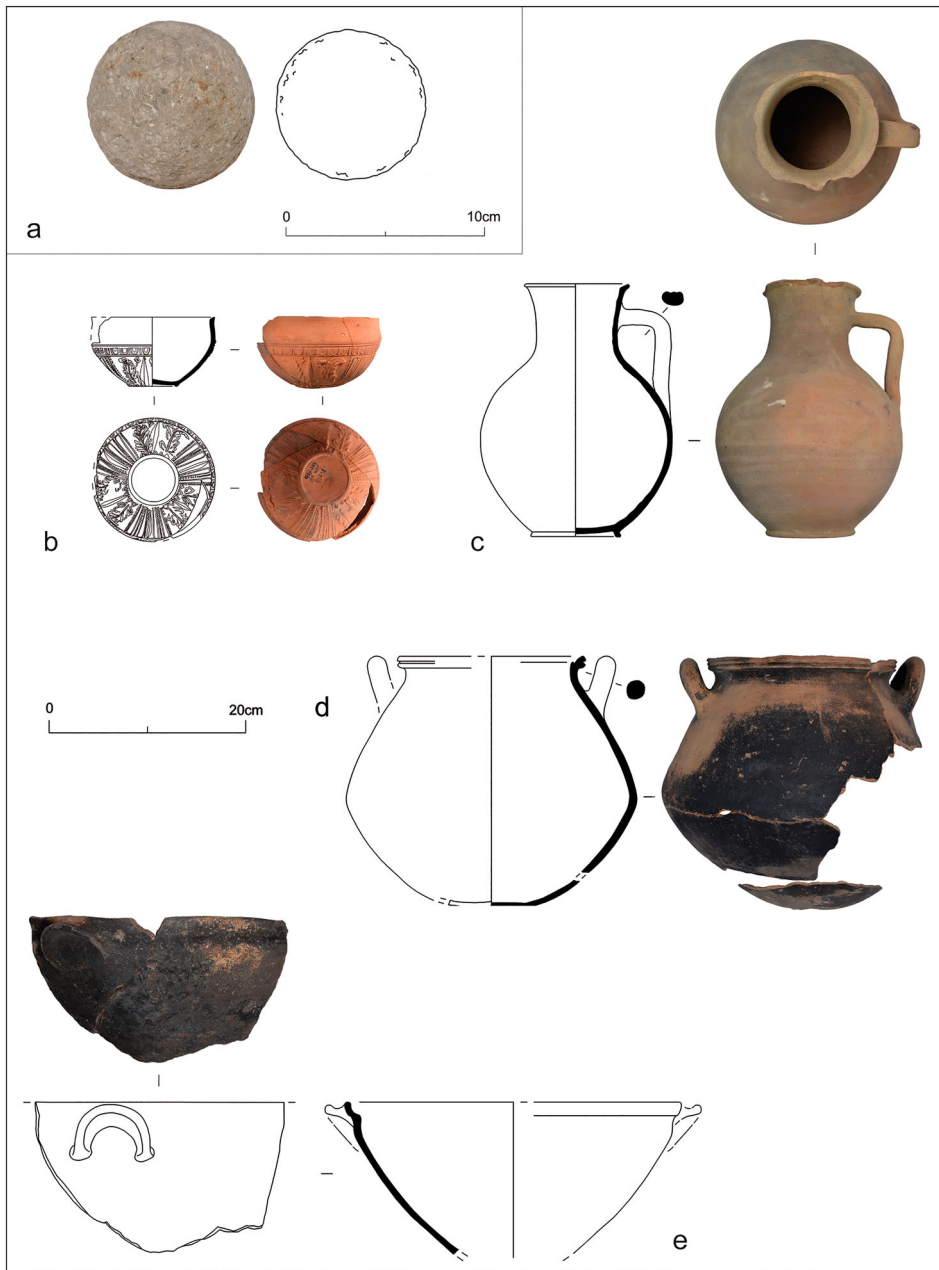


Figure 8. The finds: a) stone sling bullet; b) Megarian bowl; c) jug; d-e) cooking pots (drawings and photos S.V. Olkhovskiy, IA RAS).

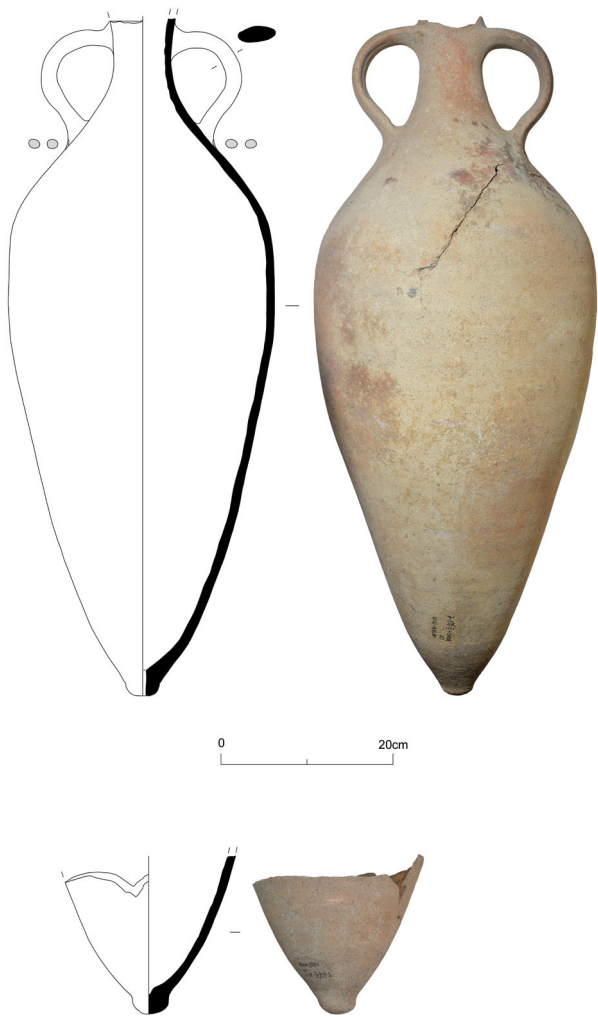


Figure 9. Colchian amphorae (drawings and photos S.V. Olkhovskiy, IA RAS).

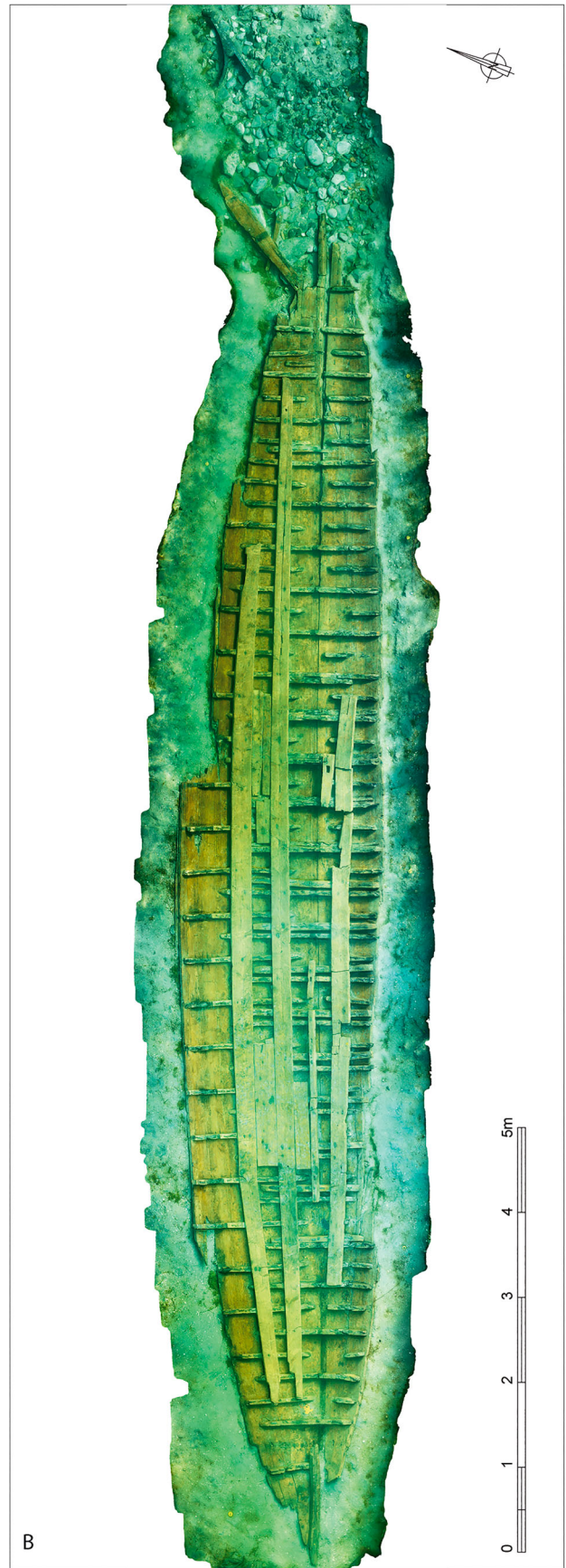
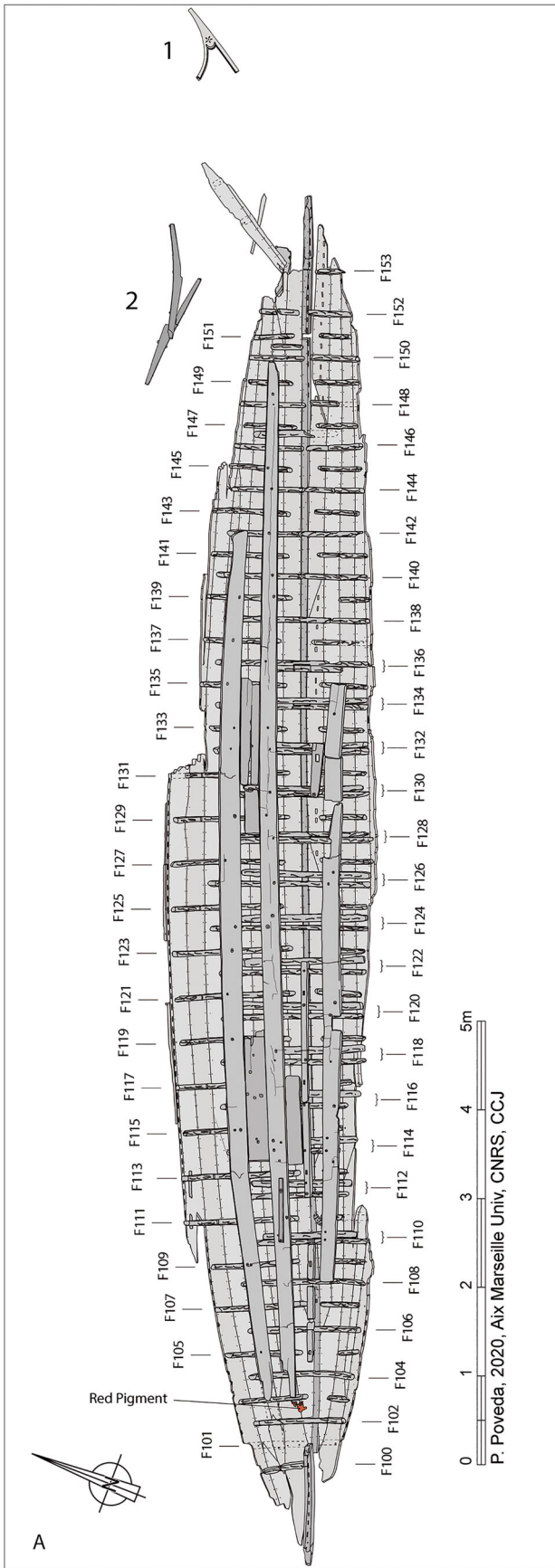


Figure 10. a) Plan of the Phanagoria shipwreck: 1) ram; 2) *proembolion* (drawing P. Poveda, CCJ/CNRS); b) the Phanagoria shipwreck after removal of the ballast (orthoimage M. Zhukovsky).

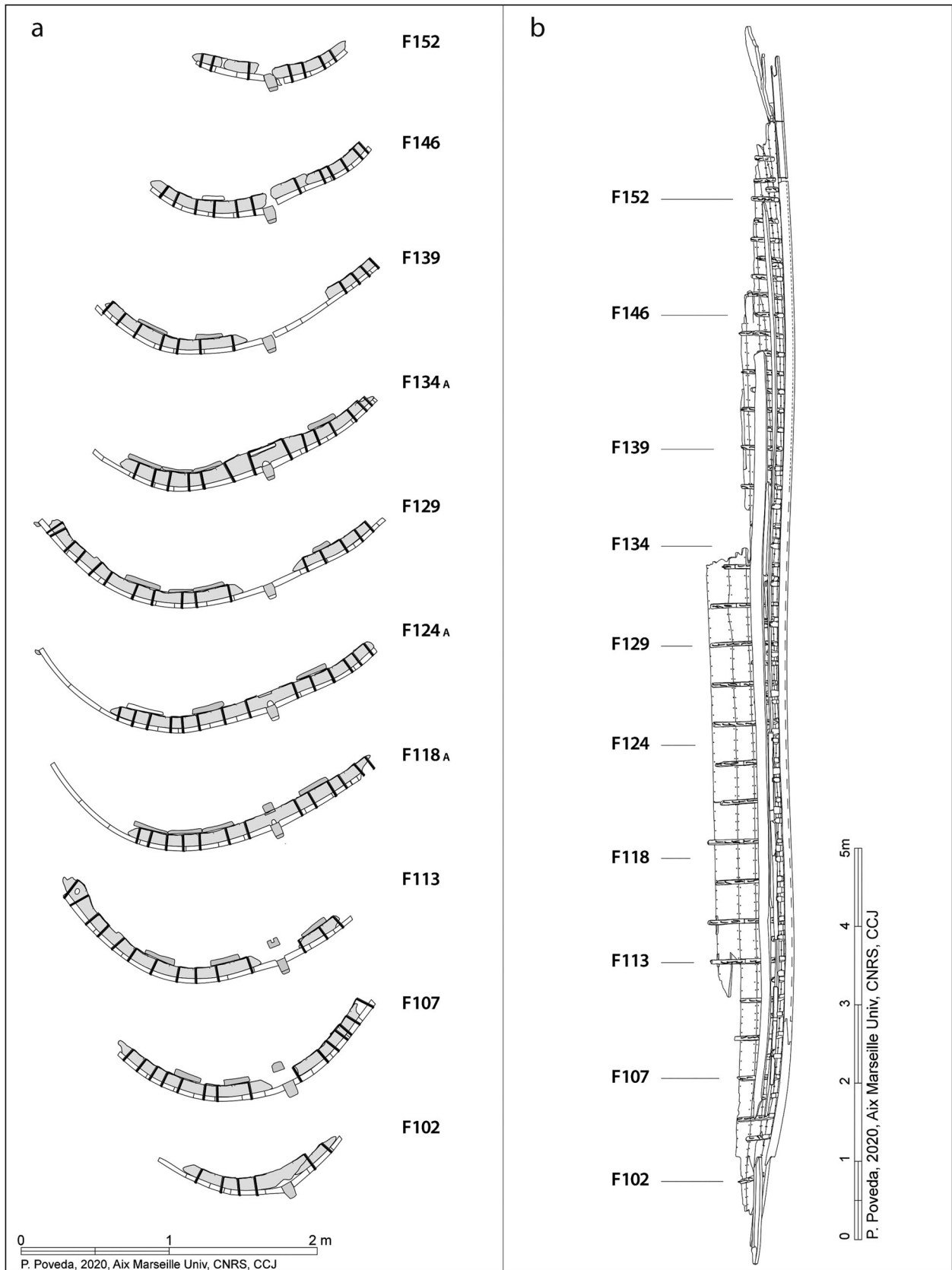


Figure 11. The Phanagoria shipwreck: a) cross sections; b) longitudinal section (drawing P. Poveda CCJ/CNRS).



(a)



0 5cm

(b)

Figure 12. The keel: a) view of the fore part (photo S.V. Olkhovskiy, IA RAS); b) section of the keel and its false keel (photo P. Poveda CNRS/CCJ).

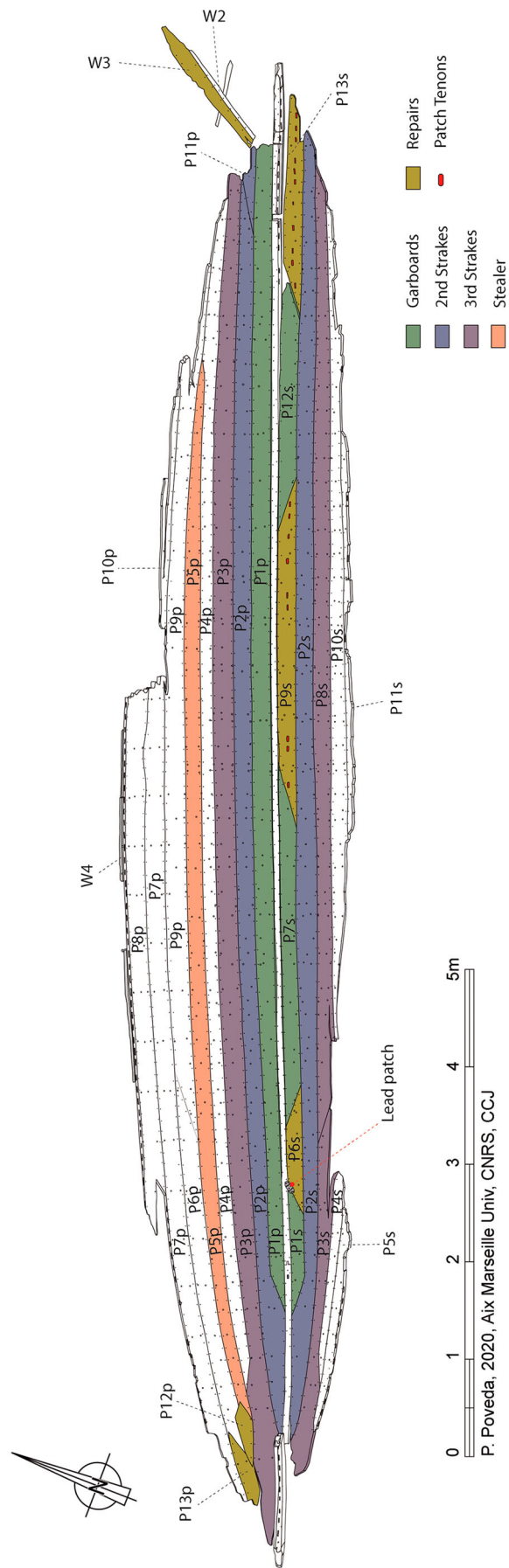


Figure 13. The planking plan (drawing P. Poveda CCJ/CNRS).



Figure 14. The bottom of the shipwreck (photo S.V. Olkhovskiy, IA RAS).



(a)



(b)

Figure 15. The rail timber W4: a) view *in situ* (photo S.V. Olkhovskiy, IA RAS); b) section view. Note the nail connecting the timber to the planking (photo P. Poveda, CCJ/CNRS).

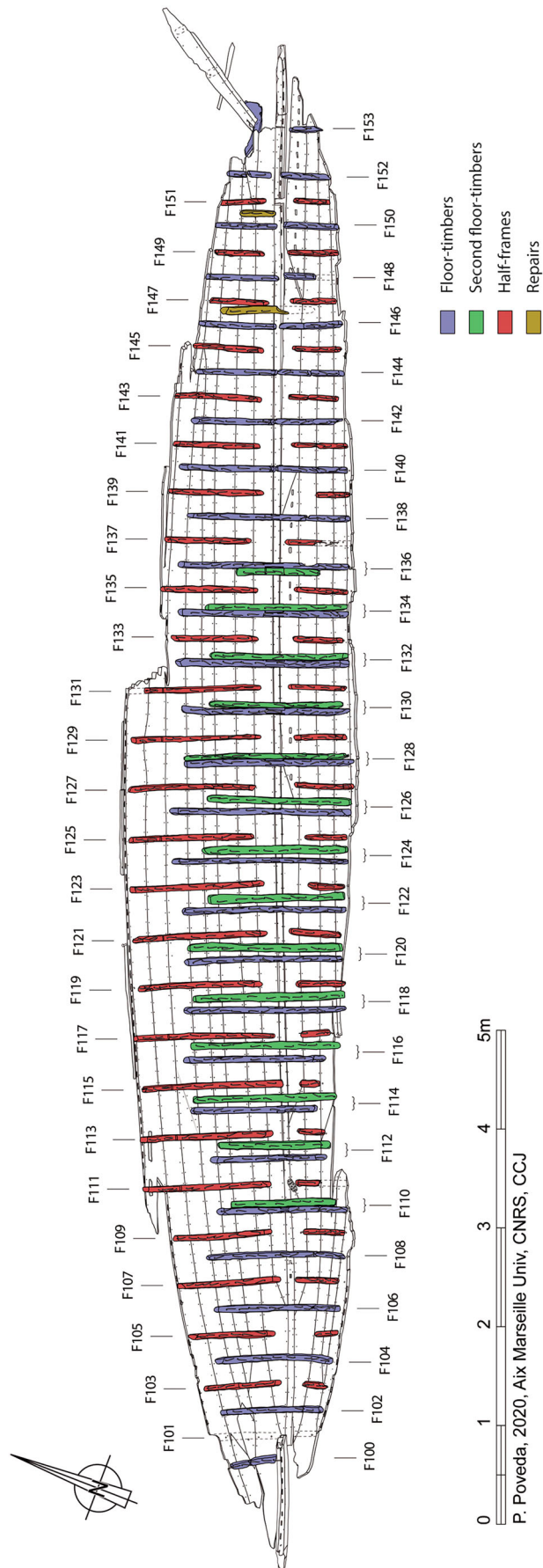


Figure 16. Frame plan (drawing P. Poveda CCJ/CNRS).

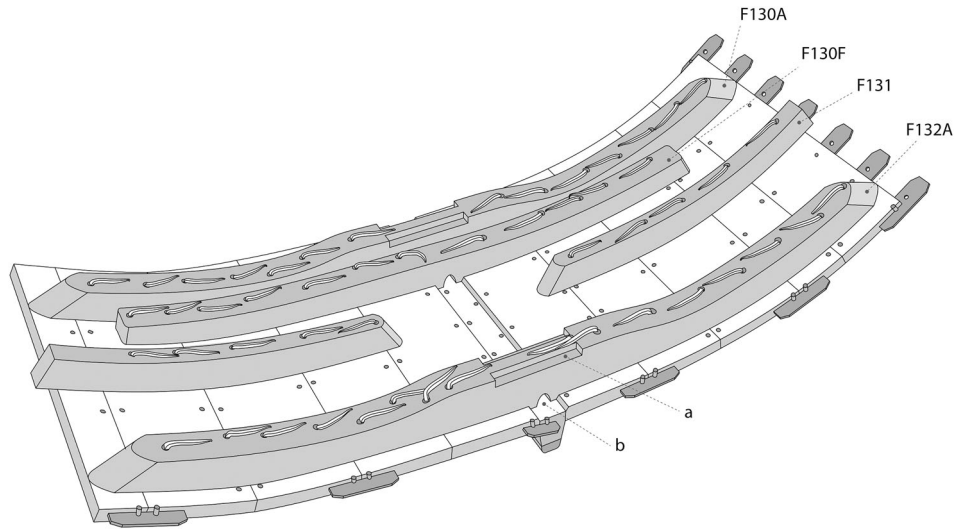


Figure 17. Framing pattern: a) recesses for the mast-step; b) limber-hole (drawing P. Poveda CCJ/CNRS).

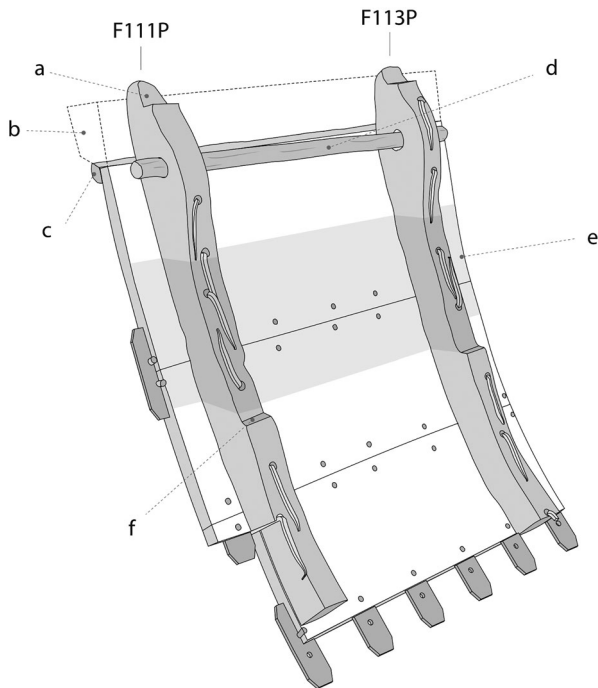


Figure 18. The upper part of the port side between frames F111P and F113P: a) notch; b) reconstructed wale (ninth strake); c) slender timber W4; d) cleat; e) dark trace on the pitch; f) recess supporting a stringer (drawing P. Poveda CCJ/CNRS).



Figure 19. The upper part of the port side between frames F111P and F113P (photo S.V. Olkhovskiy, IA RAS).



Figure 20. Fragment of the upper extremity of frame F117P with the wedge (photo P. Poveda CNRS/CCJ).

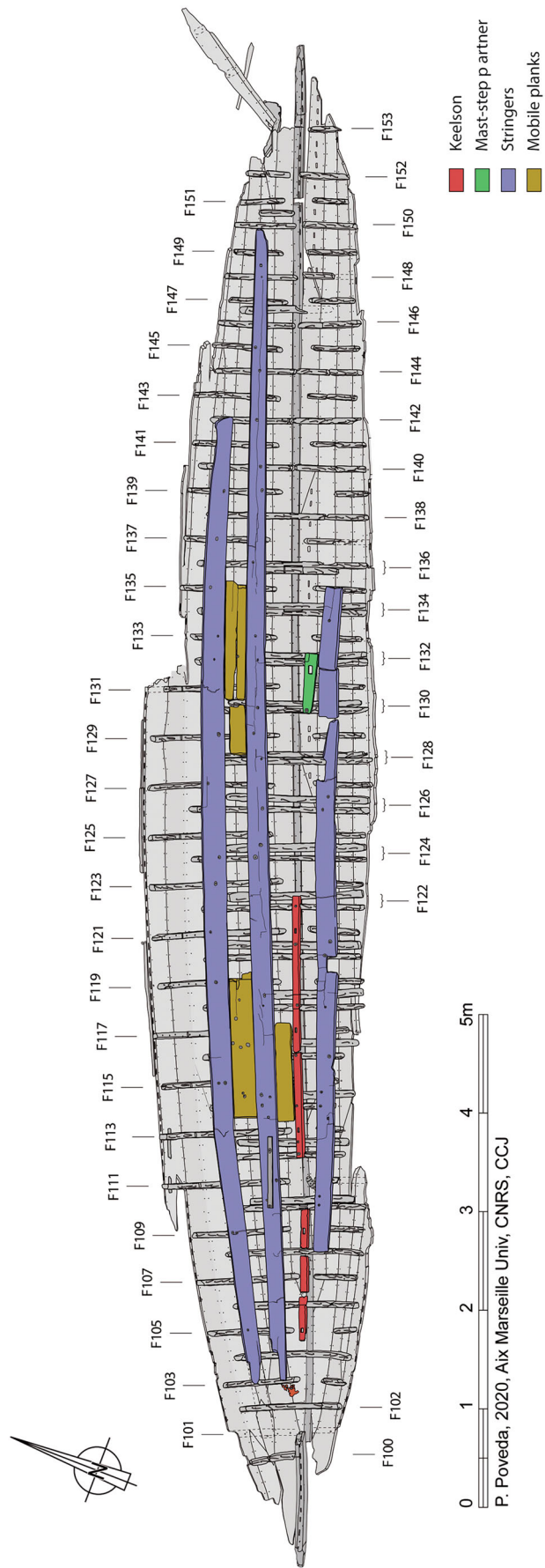


Figure 21. Plan of the internal longitudinal components (drawing P. Poveda CCJ/CNRS).

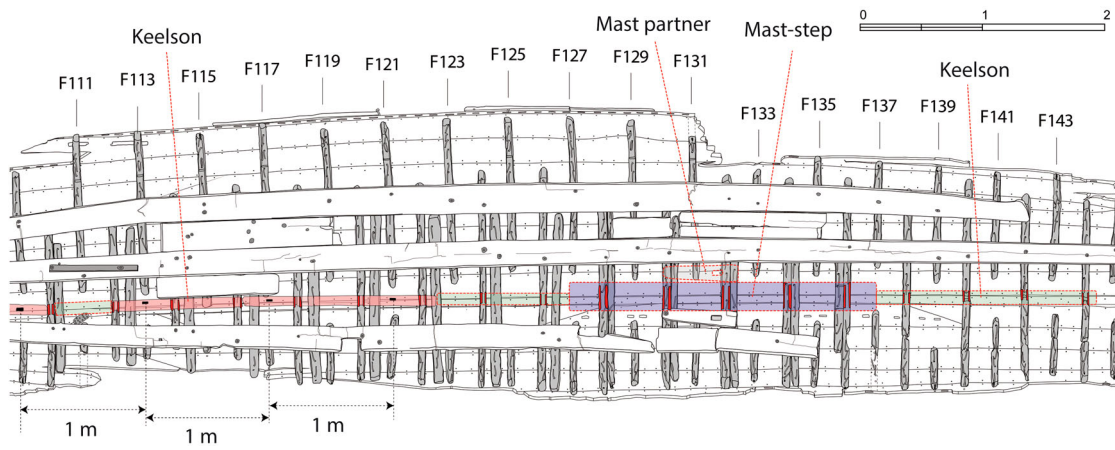


Figure 22. The position of the recesses on the top of the frames (red), the reconstructed mast-step (violet), reconstructed parts of the keelsons (green), conserved keelson on the stern (rose) with the four mortises for stanchions (black) (drawing P. Poveda CNRS/CCJ).

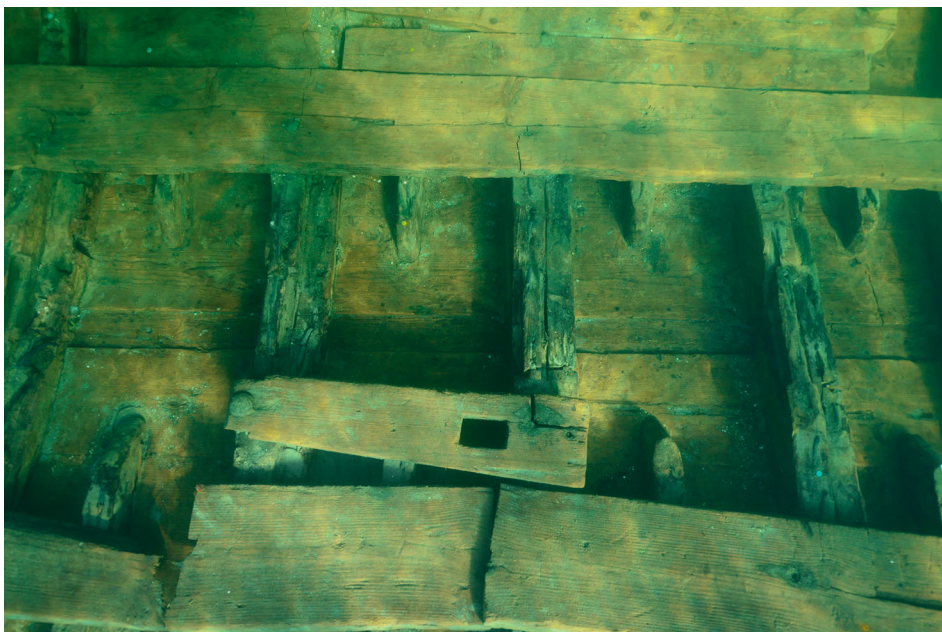


Figure 23. The starboard mast partner (photo S.V. Olkhovkiy, IA RAS).

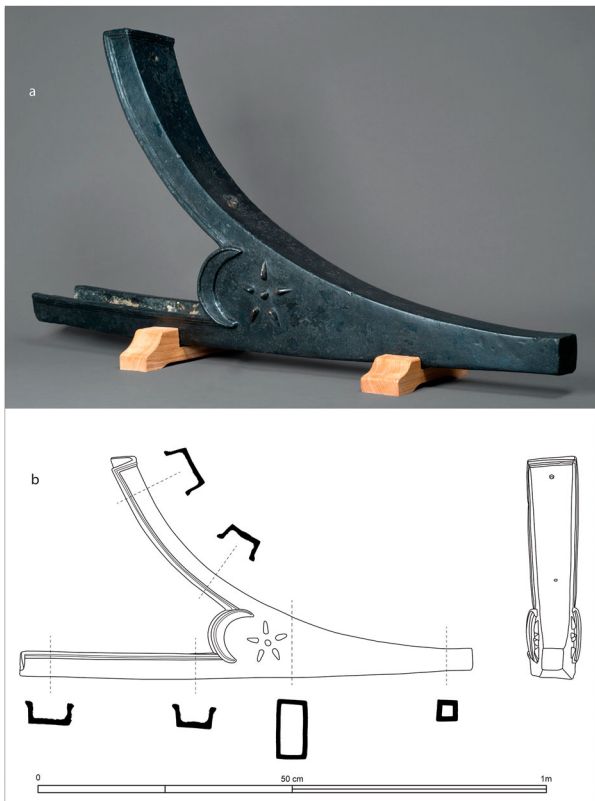


Fig. 24

Figure 24. The ram (a) photo IA RAS; b) drawing P. Poveda CNRS/CCJ).

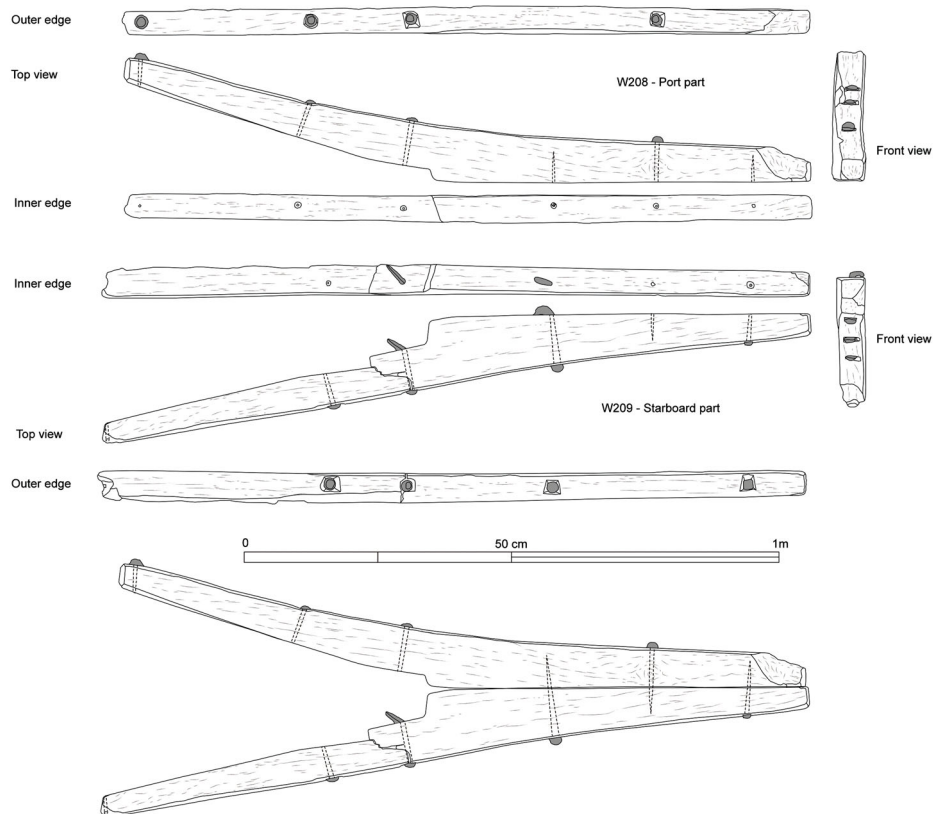


Figure 25. The fore-ram or *proembolion* (photo and drawing P. Poveda CNS/CCJ).



Figure 26. The recesses for the nails in one of the timbers of the fore-ram or *proembolion*. Note the traces of red pigment (photo P. Poveda CNS/CCJ).

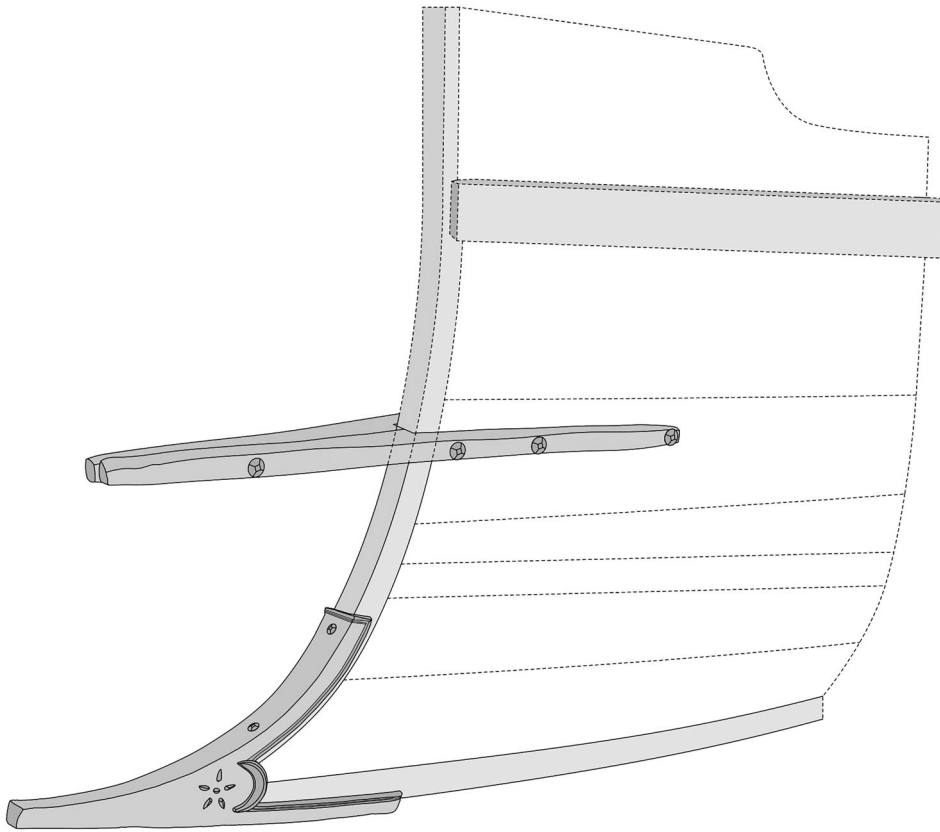


Figure 27. Hypothetical reconstruction of the position of the fore-ram in the bow (drawing P. Poveda CNS/CCJ).

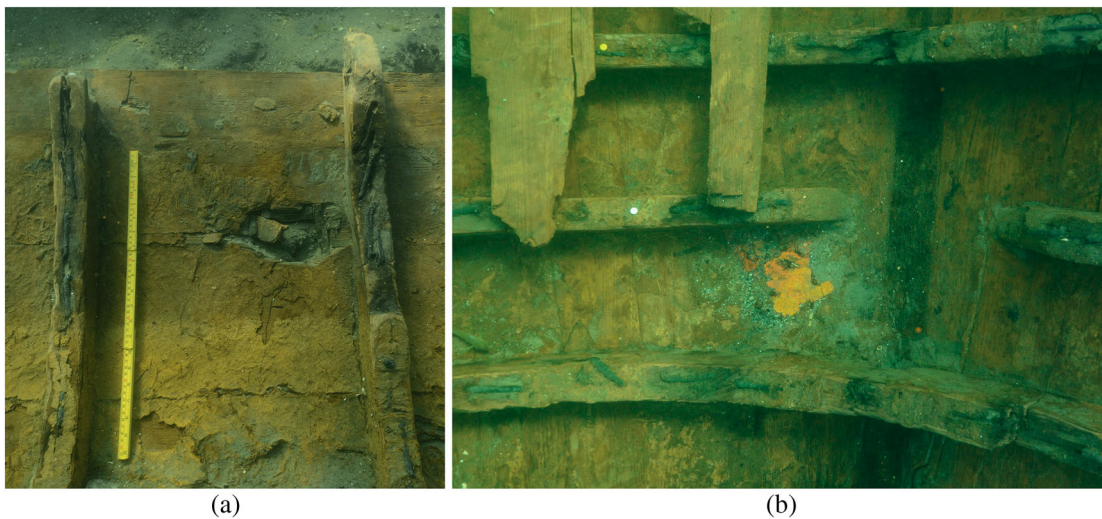


Figure 28. a) The port side covered with pitch. Note the different colouring of the pitch: the exposed parts are yellowish, while the parts that were hidden under the stringer are darker (photo S.V. Olkhovskiy, IA RAS); b) Small pile of a red substance inside the hull between frames F102 and F103, in the aft part of the ship (photo S.V. Olkhovskiy, IA RAS).

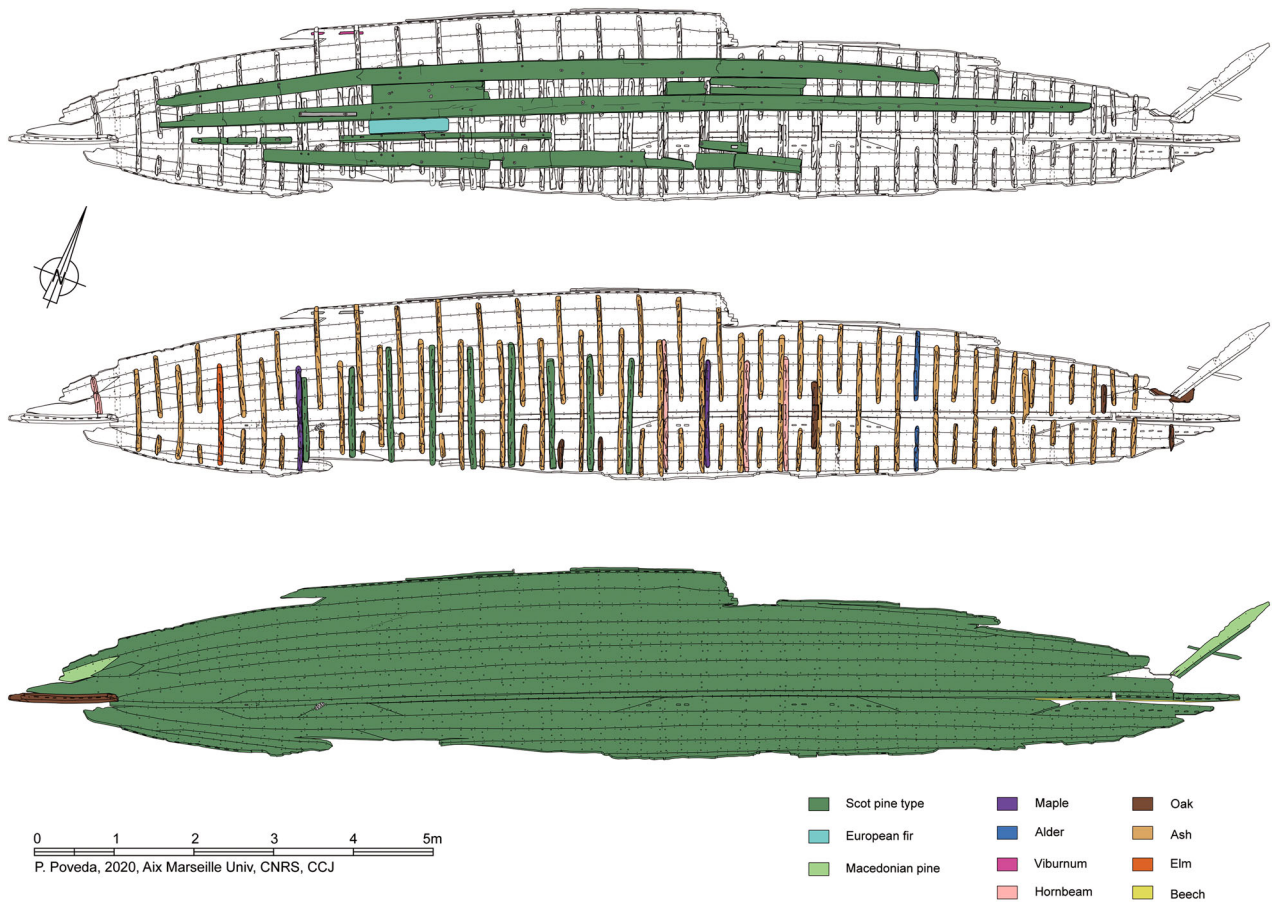


Figure 29. Distribution of wood species (identification C. Cenzon-Salvayre, drawing P. Poveda CNRS/CCJ).

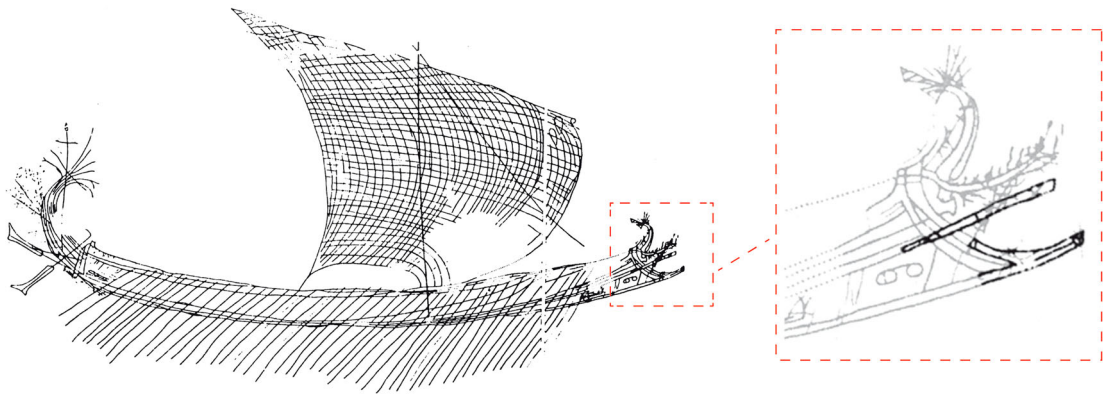


Figure 30. Graffito from the House of Dionysus, Delos, 88–69 BCE: *hekatontore* (drawings Captain D. Carlini, courtesy Musée national de Marine, Paris).

