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Project Gallery

The North Caesarea 1 shipwreck: challenges of re-excavating a large merchantman

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The North Caesarea 1 shipwreck, briefly explored in the 1980s, is one of the few hulls of the Hellenistic and early Imperial periods excavated in the Eastern Mediterranean. This investigation relies on the meticulous re-examination of primary excavation data to help answer some questions regarding this hull that probably belonged to a large vessel.

Keywords: Mediterranean, ship/harbour archaeology, architectural type, bilge pump, wiggle-matching analysis, maritime trade

Introduction

The shipwreck known as North Caesarea 1, one of the few fully excavated Hellenistic or early imperial hulls in the Eastern Mediterranean, was found off the coast of the city that bears the same name and was built by King Herod (r. 37–4 BC) in 22–10/9 BC. This settlement once extended along the southern Levantine coast, on the shore of the Sharon plain, bordered to the north by the stream Tanninim and to the south by the Yarkon River. The wreck is sometimes called Straton's Tower after the Hellenistic settlement that flourished before the founding of Caesarea Maritima. Herod provided the Roman city with a harbour (named Sebastos, the Greek equivalent of the Latin imperial title of Augustus) featuring three basins that have previously been investigated (Raban 2009). Caesarea is one of the best-known sites in Roman harbour archaeology. Although several assemblages have been noted off the coast around Sebastos, only one hull has been discovered outside the Herodian harbour. The find site lies in the northern bay, once an important component of the harbour system, approximately 60m offshore (Figures 1 & 2) at a depth of 3m (Figure 3).

Initial exploration

Excavation of the North Caesarea 1 shipwreck was challenging due to continual movement of sediment by currents, the propensity for storms in the area and the presence of widespread

Received: 16 May 2024; Revised: 2 September 2024; Accepted: 9 December 2024

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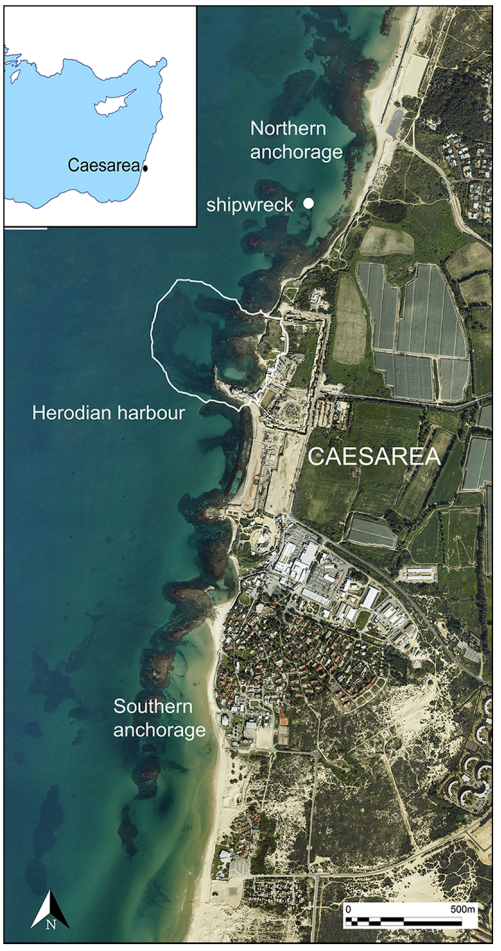

Figure 1. The Caesarea harbour system (Computer Aided Design: E. Arkin Shalev/SHIPs project).

Roman architectural debris on the shore, which prevented easy access. Initial exploration was conducted in the 1980s (Raban 2009). Several underwater operations were carried out despite rough sea conditions, including surveys and limited excavations to examine parts of the hull. Investigations of the vessel also formed the focus of doctoral work, which was later published as part of the final report (Fitzgerald 1994). This early investigation exposed a hull lying on a north–south axis that included 37 frames and 14 strakes but not the keel. The most remarkable feature of this hull is the massive dimensions of the various components, including 100mm-thick planking, indicating it had once belonged to a large merchantman (a class of ship that could be hired to transport goods and passengers). Fitzgerald's (1994) research, comprising detailed comparisons with other ancient shipwrecks, was based on scarce remains. His analysis of the few remaining structural features of the hull relied on several radiocarbon samples, leading to the conclusion that the ship was a first-century BC large vessel that sank in the first century AD. The preliminary report also includes several analyses, such as the identification of tree species, that were not widely undertaken in ship archaeology at the time.

The early excavation was believed to have covered the entirety of the preserved hull. Yet Fitzgerald's PhD dissertation (1995: 7–17) includes a chapter detailing operations not included in the 1994 publication, expounding on the tremendous difficulties involved in excavating the site and revealing that only a small part of the hull could be documented. Our examination of the unpublished files, stored in the archive room of the Israel Antiquities Authority, confirms that the hull was not fully recorded. As this early investigation documented only limited sections, several of these preliminary conclusions cannot be confirmed, thus requiring an additional field investigation to study the entire hull.

Challenges of the new investigation

Over the next 30 years, the wreck did not draw further attention from underwater archaeologists until our intervention was carried out with the support of the Laboratory of Nautical

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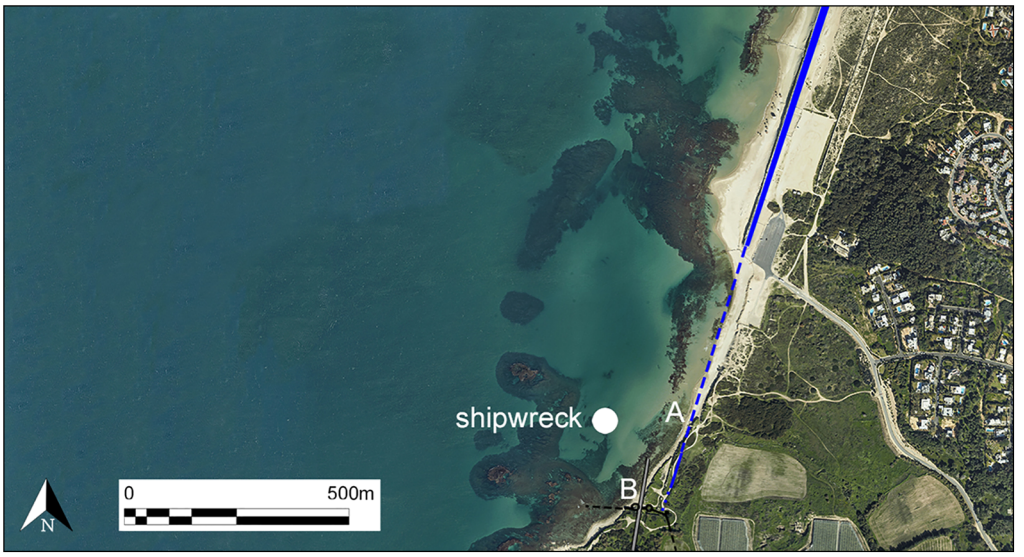

Figure 2. The northern bay with the location of the wreck (white dot), the northern cloaca *(sewer) (marked A), the Herodian city gate and towers (marked B) and city wall (black dashed line), the High Aqueduct (blue line) and the road (grey line) (CAD: E. Arkin Shalev/SHIPs project; after Patrich 2011: fig. 8).*

Figure 3. The northern bay with the location of the wreck circled in red (photograph by E. Nantet).

Archaeology and History (University of Haifa). Damage had accrued in the intervening decades but the extensive underwater excavations in 2017–2018 were able to document the entirety of the remaining hull (Figures 4, 5 & 6). The project SHIPs (Ships Harbouring in Ports) began in autumn 2023 and provided the opportunity to continue the research on this wreck, which is crucial for the understanding of the harbour system.

The investigation found that the hull suffered substantial damage in the interim. Thus, the initial aim of the excavation was to identify the timbers studied and drawn by the previous

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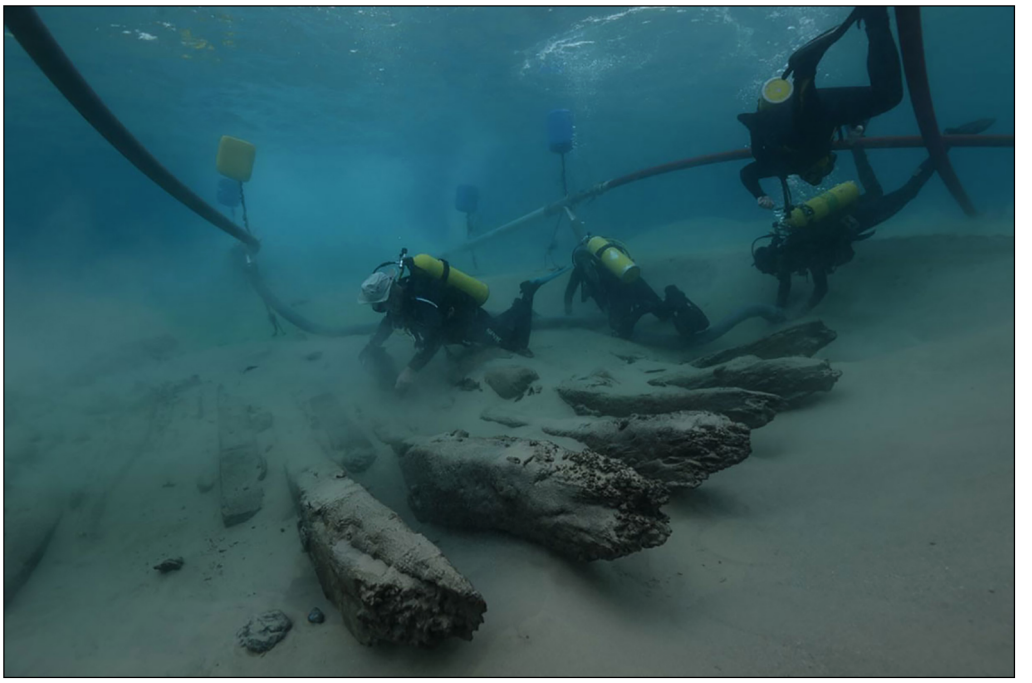

Figure 4. The shipwreck during the excavation, covered with a thick layer of sediment (photograph by N. Ponzone).

Figure 5. The shipwreck at the end of the 2018 excavation, looking to the north (photograph by G. Verly).

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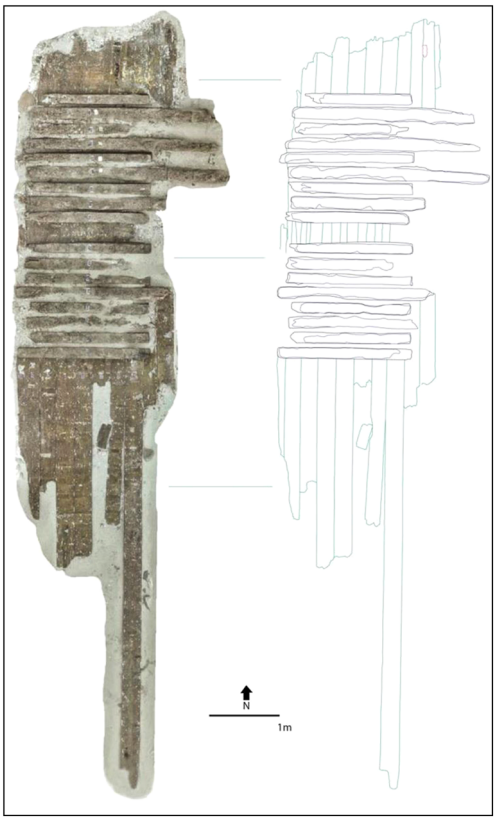

Figure 6. Orthophoto (left) and preliminary plan (right) of the hull from the 2018 campaign (photogrammetry by B. Derenne/G. Verly; plan by CAD: G. Verly).

team. Their rough sketch depicts a much larger hull than the portion preserved and explored during our intervention. For this reason, the identification of the number of each frame and plank was particularly challenging. The excavation archives, especially the collection of photographs, were used to identify the frames that correspond with the ones we designated as 8–11, which had been labelled with white plastic tags (whose ink became erased with time) that were nailed onto the timbers. Meticulous study of the available documents did not, however, provide any further information that would allow us to securely identify the precise planks appearing in the initial sketch of the wreck drawn by the team in the 1980s.

Identified in the 1980s with letters from A to N, we decided to arbitrarily number the preserved planks from 5 to 15. Plank 12, extending approximately 4.5m to the south of the others, may correspond to plank G. Comparison of the plan we drew and the sketch from the 1980s suggests that the remaining hull represents only a portion of the shipwreck studied in the 1980s. Although much information has been lost since then, this new inquiry presented a crucial opportunity to extensively record the hull, something that was not possible beforehand. The loss of many frames allowed us to access and study the remaining planking.

Aims and methods of the new investigation

Documentation of the remaining timbers has helped to determine the vessel's architectural type, using new techniques and methods that have rarely been implemented in nautical archaeology in the past. The systematic collection of samples from all the hull timbers will provide accurate data on the species of wood selected for the construction of this vessel. Despite the absence of reference samples from the Eastern Mediterranean, our team systematically examined the tree-rings in the timbers and meticulously collected samples for radiocarbon dating. Wiggle-matching analysis should therefore provide more accurate dating.

The excavation found an exceptionally well-preserved rope running through the watercourses of the hull. Common in ancient vessels for drainage purposes, the rope connected through these apertures to the lowest part of the hold and allowed a bilge pump to expel

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water. A closer study of this feature will help us understand the ship's pumping system, building on current knowledge of the pump itself (Carre 2007).

Conclusion

The North Caesarea 1 shipwreck constitutes important evidence for maritime trade during the Hellenistic and early Imperial periods because few hulls from this period are known in the Eastern Mediterranean. Furthermore, most of the excavated wrecks from these periods are from small vessels (Nantet 2016); as the remains of a large merchantman, this shipwreck therefore provides a unique opportunity to study the structure of larger vessels, albeit in part. Hence, exploration of the shipwreck is essential for understanding maritime trade in the Eastern Mediterranean.

Funding

The project is subsidised by the University of Haifa's Research Authority, the Honor Frost Foundation and the European Research Council (CoG, SHIPs, 101088962). Views and opinions expressed are, however, those of the authors only and do not necessarily reflect those of the European Union or the European Research Council. Neither the European Union nor the granting authority can be held responsible for them.

References

Carre, M.-B. 2007. Les pompes de cale et l'évacuation de l'eau de sentine sur les navires antiques, in J.-P. Brun & J.-L. Fiches (ed.) *Énergie hydraulique et machines élévatrices d'eau dans l'Antiquité* (Publications du Centre Jean Bérard 27): 51–66. Naples: Centre Jean Bérard.

Fitzgerald, M.A. 1994. The ship, in J.P. Oleson (ed.) *The harbours of Caesarea Maritima. results of the Caesarea Ancient Harbour Excavation Project (1980–85). Volume 2: the finds and the ship* (British Archaeological Reports International Series 594): 163–223. Oxford: Archaeopress.

– 1995. A Roman wreck at Caesarea Maritima, Israel: a comparative study of its hull and equipment. Unpublished PhD dissertation. Texas: A&M University.

Nantet, E. 2016. *Le Tonnage des navires de commerce en Méditerranée du VIII^e siècle av. l'è. chr. au VII^e siècle de l'è. chr*. Rennes: Presses Universitaires.

Raban, A. 2009. *The harbour of Sebastos (Caesarea Maritima) in its Roman Mediterranean context* (British Archaeological Reports International Series 1930). Oxford: Archaeopress.

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