

Name: Paul Crame

Course Module: MA Archaeological Practice: Archaeological Research Methods (HPAR7004)

Tutors: Nigel Nayling and Martin Locock.

Date: 02/11/2021

Word Count: 1939

With reference to a specific archaeological project, critically assess the methods of archaeological investigation employed, and the nature of the archaeological materials/ data recovered.

The Tankerton Bay Wreck (TBW) was first identified in the middle 1990s and noted on the Kent Heritage Environment Record (HER) as an oval shape on the foreshore at low tides at Tankerton East-Kent (Kent County Council, 2021). In 2017 a local archaeology group observed the same oval shape whilst conducting fieldwalking on the shoreline. Wessex Archaeology Ltd. In partnership with English Heritage subsequently took initial dendrochronological and environmental samples in late 2017; the retrieved samples dated the timber of TBW from the early to mid-16th Century. The report (Croce, et al 2019) therefore relates to the initial evaluation fieldwork conducted in 2017 and the excavation on TBW between the 10th of July to the 20th of July 2018; undertaken because TBW was considered an important national discovery which could produce a significant amount of new data on shipbuilding and trade in the early post-medieval period.

The geology of this part of the East of Kent coast is abundant in the London Clay Formation, as evidenced by Copperas Works (Iron Pyrite) dating back to the 16th Century located approximately 1000 meters Northwest from TBW (Allen, et al 2001). The London Clay presented a unique opportunity, as the fine clay particles would have formed anaerobic conditions, potentially preserving any organic matter found in situ of TBW (Bagheri & Rezania 2021). This was certainly a main research objective with regards to the use of environmental sampling in the project.

The initial evaluations of timber samples taken from two excavation trenches inside the hull of TBW in late 2017 helped establish the approximate date of TBW. Also, the identification of the type of timber used for both construction and repair. However, due to the limitations of the evaluation trenches, some incorrect conjectures were made with regards to the amount of collapsed timber to be found within the hull of TBW; which impacted the methodological approach used for the July 2018 excavations, which revealed additional roof planking, disarticulated timber and a collapsed galley structure inside the hull of the TBW. The 2017 test trenches also had the counteractive effect of compromising the marine silt and clay inside the hull, waterlogging the timber and making the later 2018 excavations difficult. Smaller

randomised test trenches with perhaps a greater spread might have minimised impact on TBW and would have possibly given a better interpretation of the structure for future work. In addition, waiting until spring 2018 for the evaluation work and then starting the excavations in early summer might have lessened the impact of waterlogging. Although TBW was an unknown wreck in 2017, and there was a sense of urgency to recover as much data as possible before the winter.

As discussed in Section 4 of the report, Croce et al, (2019), the 2018 fieldwork methodology aligned with the standards outlined in ClfA guidance (ClfA 2014a). It consisted of recording TBW on a Global Positioning System (GPS). The surface marine silt and clay was then progressively removed under the supervision of senior team members until the outline, and interior timber structure of TBW was exposed to the foreshore surface. The main logistical problem encountered by the team was due to the time limitations of the changing tides. Although the water was not present on the surface, the ebb tide was still draining seaward under the marine deposits making the onsite recovery cleaning and identification of archaeological deposits difficult. Metal detectors were also used onsite, although some consideration must be given to the mineralised condition of the foreshore, especially the presents of naturally occurring iron pyrite in the London Clay.

Data Recording methodologies were as follows: Archaeological features and deposits recorded on Wessex archaeology proforma recording system, digitised records made and aligned to Ordnance Survey (OS) maps, hight Ordnance Datum (OD) produced and applied to site and section drawings and Global Navigational Satellite System (GNSS) was used to provide accurate geographical point data in conjunction with the OD data to give the physical dimensions of the site. Multiple high-quality photographic images were also taken of TBW features with embedded metadata for longer-term archival use.

Due to the anaerobic conditions of the site, there was a high expectation that environmental sampling could produce important data; all sample locations were recorded via GPS, and there was a planned objective to use these techniques, as it was understood that these scientific methodologies are sometimes not utilised to the full potential for intertidal excavations. Eight bulk sediment samples were retrieved to measure the microfossils content via a bucket floatation method, three samples of timber caulking were taken and analysed under a high-power microscope for moss species type, three wet subsamples for foraminiferal analysis, nine sub-samples for pollen spores, Dinoflagellates sub-samples to determine the provenance of the wreck in relation to the stratigraphy, Geochemistry samples via Solid State Nuclear Magnetic Resonance (ssNMR), pyrolysis Gas Chromatography – Mass Spectrometry (py-GC-MS) and finally radiocarbon dating.

The research objectives were formulated under the Greater Thames Research Framework (English Heritage 2010), which includes difficult open-ended questions

such as developing knowledge around maritime activity in the wider region with consideration to trade and settlement and economic activity. The Framework also included a selection of specific research objectives that were perhaps more realistically accessible with the archaeological methodologies deployed with TBW in both 2017 and 2018, such as selecting specific remains for detailed study, identifying the nature of the cargo, locating the direction and destination of trade.

A total of 46 timber samples were retrieved from TBW between 2017-18; the samples were examined and produced important data regarding the age of the timber, species type, and possible origin. It is important to note that the project design should have a sampling strategy for the dendrochronological sampling from the beginning to address these research questions in a systematic and step by step way (Domínguez-delmás 2019); although the most perplexing research question with TBW was its origin. The timber used was sourced from Germany, England and Scandinavia, yet the boat structure shares characteristics with carvel trading ships made and used in the Netherlands/low countries in the early post-medieval period. The consensus-based on the dendroecology data points towards the vessel origins in the low countries, with timber exported from southern Germany and subsequent repairs made in England with native oak and imported stockpiled Scandinavian timber. Again, the proximity of TBW to the Copperas Works, which was set up by chemists from the low countries in the same period (Goodsall, 1957), is a tempting association to make, although no data in the recovered archaeological record can make this a clear link.

Three of the caulking samples identified 11 species of moss; one was from an origin further to the North of England; animal hair was found in one of the samples, which would have been more extensively used in England as an additive to caulking. Comparatively, moss was often used on the continent to add to caulking (Deforce et al 2014); although the data is not clear as moss could have also been used as cushioning material when transporting cargo or even used to insulate and hold the shape of leather shoes (Nayling & Jones 2014).

The microfossil sampling may have also indicated the foodstuffs used by the crew or transported in the bulk area of TBW; the sampled data showed that plum stones, hazelnut shells, and raspberry seeds were present. Interestingly, remains of cereal and cornflower were identified, indicating that TBW was used to transport bulk grain, maybe from the Baltic via the low countries; cornflower was harmful to grain crops but could have been harvested with grains and not separated. Conversely, the cornflower was also thought to be a symbolic flower, tied to many old folk traditions, young men would wear them, and if the blue colour faded too quickly, it meant their love would not be returned. (Howard, 1987). TBW was most probably a cargo vessel, and the presence of cornflower is indicative that TBW transported bulk grain at some point during her lifetime and not likely to be from a personal recovered artefact of a crew member. Still, it is also essential to consider both widely and objectively the

possibility that the recovered assemblages could take on many different meanings beyond the evident functional economic perspective.

The range of pollen specimens, foraminifera and dinoflagellates did not discern much difference to the locality of the saltmarsh area found on this part on the coast. One exception was the single spruce pollen grain of *Picea*, which would give weight to the theory that TBW had contact with Northern Germany/Scandinavia. There is maybe scope to increase the amount of pollen, spore, foraminifera and dinoflagellates sampling to produce improved representative samples, if future excavations of TBW go ahead. The geochemistry results did not give a clear picture in regard to identifiable organic compounds across all the samples taken, although a crude pine derived creosote was detectable in some of the samples, it could not be ascertained if this was naturally occurring, more extensive sampling would be needed in the future. The radiocarbon dating samples did not unfortunately match the dendrochronological dates, dating TBW to the late 15th Century; but again, extensive sampling was not carried out in 2018, so this result is maybe an outlier in the data.

The consensus in the report is that TBW was stripped of all cargo and fittings after being stranded. Nonetheless, some interesting artefacts were recovered during the fieldwork in 2018, which have been remarkably well preserved in the marine sediment and may help answer research questions about the origins of TBW and what it was carrying. Most notable were two well-preserved leather shoes dating to the 16th century, thought to be comparative in style and age to leather shoes found in wrecks off the coast of the Netherlands, and a fig shaped wooden spoon which was representative in shape and style for the period. Ceramic finds included burnt bricks in the galley part of the vessel, most likely used for cooking and fragments of red tiles, which may have been the remnants of TBW last cargo.

The main narrative that can be taken from the data sampling and the artifacts so far recovered, is that there is still an abundance of environmental data and artefacts to be recovered, which is thought to be well preserved under the timbers and therefore more work is still needed on TBW in the future. The practical difficulties of intertidal archaeology (Bell, 2012) did impede on the 2018 excavations, which resulted in not being able to fully excavate areas of the hull that are thought to be undisturbed under the timber structure. The recovered data and artifacts does however go part of the way to addressing some of the research questions proposed in the original framework, we can certainly see from the dendrological, environmental sampling and recovered artefacts that TBW had a connection to trade between southern England and Northern Europe. But further research questions need to be more refined and based on the findings so far made from the 2017 and 2018 excavations.

The importance cannot be underestimated; our current knowledge about marine archaeology from the early post-medieval period is not abundant. TBW is an opportunity to gain insight that could impact on a national and international level,

producing a considerable amount of scholarly research outputs with receptive audiences in academia and the general public. In terms of engagement, the 2018 project involved a collaborative community effort and included volunteers from local archaeology groups in Kent and both regional and national stakeholders. The 2018 excavations also received significant local and national news coverage (Kennedy, 2018), which is important, as our heritage should always be shared with a wide audience.

Word Count 1939

Bibliography:

- Allen T, Cotterill, M & Pike, G (2001) Copperas: an account of the Whitstable copperas works and the first major chemical industry in England, *Industrial Archaeology Review*, **23** :2, 93-112, DOI: 10.1179/iar.2001.23.2.93
- Bagheri, M., Rumania, M. (2021) Geological and Geotechnical Characteristics of London Clay from the Isle of Sheppey. *Geotech Geol Eng* **39**, 1701–1713 . DOI: 10.1007/s10706-020-01572-3
- Bell, M. 2012. Intertidal Survey and Excavation. In Menotti, f ed & O'Sullivan, A ed. *The Oxford Handbook of Wetland Archaeology*: OUP Press: DOI: 10.1093/oxfordhb/9780199573493.013.0028
- ClfA (2014a) Standard and Guidance for Archaeological Excavation. Reading, Chartered Institute for Archaeologists.
- Croce, P, Gain, T and Roberts, L (2019) *Tankerton Bay, Post-excavation Assessment and Updated Project Design, Document reference 200950.03*: Wessex Archaeology. Forthcoming currently In-press.
- Deforce, K, Allemeersch, L, Stieperaere, H and Haneca, K (2014) Tracking ancient ship routes through the analysis of caulking material from shipwrecks? The case study of two 14th century cogs from Doel (northern Belgium). *J Archaeol Sci* **43**, 299-314
- Domínguez-delmas, M, Rich, S, Daly, A, Nayling, N & Haneca, K (2019) Selecting and Sampling Shipwreck Timbers for Dendrochronological Research: practical guidance, *International Journal of Nautical Archaeology*, **48**:1, 231-244, DOI: [10.1111/1095-9270.12329](https://doi.org/10.1111/1095-9270.12329)
- English Heritage, (2010), The Greater Thames Estuary Historic Environment Research Framework, Update and Revision of the Archaeological Research Framework for the Greater Thames Estuary (1999).
- Goodsall, H (1957) The Whitstable Copperas Industry, *Archaeologia Cantiana*, Vol.**70**, 142-159.
- Howard, M (1987) *Traditional Folk Remedies*: First Edition, Edbury Press.
- Kennedy, M 2018. Tudor shipwreck discovered by local group on Kent beach. The Guardian [online] 16 July [Accessed 25 October 2021]. Available: <https://www.theguardian.com/science/2018/jul/16/tudor-shipwreck-discovered-by-local-group-on-kent-beach>
- Kent County Council, (2021), Intertidal Wreck at Tankerton Beach. HER Number: TR 16 NW 1273, KCC [online]. [Accessed 25th of October 2021]. Available from: <https://webapps.kent.gov.uk/KCC.ExploringKentsPast.Web.Sites.Public/SingleResult.aspx?uid=MKE110739>
- Nayling, N. and Jones, T. (2014), The Newport Medieval Ship. *International Journal of Nautical Archaeology*, **43**: 239-278. DOI: 10.1111/1095-9270.12053

