ARHEOLOOGILISED VÄLITÖÖD EESTIS

ARCHAEOLOGICAL FIELDWORK IN ESTONIA

2007

Koostanud ja toimetanud
Ülle Tamla

Muinsuskaitseamet
Tallinn 2008

Esikaas: *13.–14. sajandist pärit ribiline väike klaaspudel Tartu vanalinnast.*

Cover: *Fragment of a 13.-14 cc small glass bottle (Ribbenflasche) from Old Tartu.*

Tagakaas: *Tervena säilinud keskaegne nahkjalats Tartu vanalinnast.*

Back cover: *Well preserved leather shoe from Old Tartu.*

ISSN 1406-3972

ARCHAEOLOGICAL MONITORING DURING RECONSTRUCTION WORKS IN TALLINN OLD CITY HARBOUR

Kristin ILVES
Baltic and East European Graduate School (BEEGS)
Södertörns Högskola (University College)
141 89 Huddinge, Sweden
Kristin.Ilves@sh.se

At the end of 2006 a shipwreck was found during the reconstruction work of the 1. quay in the Tallinn Old City harbour (Fig. 1). The remains of four blackened pieces of oak belonging to a ship's stem were salvaged by construction workers

Fig. 1. Tallinn Old City harbour with shipwreck site marked.
Jn 1. Tallinna Vanasadam koos märgitud laevavraki leiukohaga.
(www.portoftallinn.com/_up/image/vanasadam/aero2007vanasadam.jpg)

(Fig. 2). As the salvaged parts seemed to be of great age (oak turns black only after a long time in water), the Estonian National Heritage Board took a wood sample for dendrochronological dating, and, furthermore, announced this find to have a high cultural value, worthy of (rescue-) archaeological research; the quest for archaeological works was announced. A small-scale preliminary investigation of the site and the shipwreck, in accordance with the requirements for this case made by the National Heritage Board (e-mail from Maili Roio to the author 15.02.2007) and the time-scale of the harbour constructors, was designed and proposed by archaeologists Kristin Ilves and Villu Kadakas. The primary purpose

Fig. 2. 4 pieces belonging to a ship's stem construction salvaged at the end of 2006 in the Tallinn harbour.
Jn 2. 2006. aasta lõpus Tallinna Vanasadamas leitud ja pinnale toodud 4 laevavraki vööridetaili. *Photo /Foto: Muinsuskaitseamet*

of this preliminary investigation was to gain diagnostic information concerning the shipwreck, such as the age, condition and incidence, which would then serve as the basis for an evaluation of the necessity for and potential of further investigations (see Cederlund 1983, 63-64; Ilves 2008, 136-137). However, despite already being approved by National Heritage Board and only few days away of implementation, the proposition of the archaeologists for quick preliminary investigation to gather data to determine if more intensive investigation of the site was warranted was unexpectedly denied by heritage management. In dialogue with representatives from Tallinn Harbour, instead, an expert opinion from the Estonian Maritime Museum was called upon in deciding the definitive further action.

After examining the four salvaged fragmentary pieces of timber and consulting a single historical map, the researcher from the Estonian Maritime Museum hypothesised that they belonged to the wreck of the Swedish warship, Draken, from the beginning of the 17th century. Without any actual preliminary investigation of the location and/or complementary archival studies, the expert further hypothesised that the ship must be in a very poor state of preservation. It was also stated, that unless entirely preserved and thereby potentially displayable, shipwrecks of this age and type are not worthy of any kind of archaeological research.

The Estonian National Heritage Board, the institution which is responsible for cultural resource management decisions, and which had previously determined that the wreck was worthy of preliminary investigation, reversed this decision based

on the opinion provided by the expert from the Estonian Maritime Museum. Although there was no data available for the evaluation, they decided that the construction of the harbour was by no means to be interfered with, no preliminary investigation of the location conducted, but that the shipwreck was to be removed with heavy machinery during the ordinary process of dredging, still, under the monitoring of an archaeologist. Monitoring works were undertaken by Agu EMS Ltd and K. Ilves.

DREDGING ON THE SHIPWRECK LOCATION

The Tallinn harbour shipwreck was to be removed with heavy machinery during the process of dredging at the end of March 2007. The main purpose of this work was to dredge the harbour floor to depth of 9 meters in front of the quay. Initial dredging work and careful observation of floating shipwreck debris revealed that the most compact part of the wreck was situated on the very corner of the quay, reaching out from the quay's front wall; this area was left to be dredged at the end. Generally, while dredging the rest of the area, in accordance with the expectations (as the older quay constructions were known to be situated on a spot), parts of the older quay constructions, such as timber and stones were unearthed. Sporadically, also, parts of the shipwreck were salvaged with the shovel or floated up as the result of sediment vibration caused by the dredger's work. This material consisted of single, fragmentary shipwreck details of which few showed traces of fire, but which had in some cases clearly been broken off from the more compact part of the ship or simply crushed by the dredger's shovel. Considering the machinery in use, it is not surprising that the position and the context of the salvaged shipwreck material was impossible to determine. Thus, very little meaningful archaeological information was recovered during the described works. Approximately forty extremely fragmentary shipwreck details, amongst which only parts of the planking were clearly identifiable, were salvaged and gathered before the dredging concentrated on the main body of the wreck near the corner area of the quay. It was in this area that the extremely powerful dredger was unable to clear something that was originally described to be a very fragmentary shipwreck[1] by the expert from the Estonian Maritime Museum. Although numerous attempts were made, the dredger was unable to clear the obstacle and continued to slip off an object, which continually thwarted the success of the salvage operation. The harbour constructors therefore not even seriously considered the

[1] In the Baltic Sea area shipwreck-archaeology, proceeding from condition, wrecks are divided in four categories: 1) completely preserved wrecks – the (damaged) hull of the ship is preserved, 2) partly preserved wrecks – the bottom of the ship is preserved, 3) fragmentary pre served wrecks – the separate parts of the ship, such as planks and frames are preserved, 4) no specifiable wrecks – only very fragmentary parts of the ship are preserved (Cederlund 1983, 57).

Fig. 3. Fragmentary part of the ship's side covered with copper plates.

Jn 3. Vaskplaatidega kaetud pardafragment.

possibility that the obstacle could be an old wooden and demolished shipwreck. However, the nature of the obstacle was clarified when a fragmentary part of the ship's side measuring 4.8 x 0.8 x 0.11 m and covered with 8 copper plates (Fig. 3), two of which broke away during the transportation, floated to the surface of its own accord. Thus, the hindrance that was insurmountable for the dredger's shovel under water still consisted of a wooden, but copper sheathed shipwreck, which was obviously much better preserved than hypothesised earlier by the expert – this information was also confirmed after the dives on the location. The shipwreck, which had traces of fire on some of the salvaged details, was at least partly covered with copper plates. Metal sheathing on ships to protect the vessel's hull from wood-devouring molluscs and crustacean i.e. worms, is an old tradition and known to have been used at least 2000 years ago (lead sheathing). Copper sheathing is known to have been used from the early 17th century on Chinese junks. It is probable that the Dutch East India Company adopted this practice in Europe, but despite the early 17th century examples, in general, the copper sheathing became a general practice in many navies only after the well-known coppering of the Royal Navy's *Alarm* in 1761 (Bingeman *et al.* 2000, 220). By the mid 19th century, however, the reasons for sheathing vessels started to be dramatically altered by the change from wood to metal in their hull construction. Herewith, copper sheathing most likely dated the wreck from the Tallinn Harbour to the period 1750–1850.

The purpose of all the different sheathing methods used until the end of the 19th century was the prevention of "worm"[2] and therefore, to find a coppered ship in the low salinity Baltic Sea is relatively surprising. Nevertheless, she was still an obstacle to the reconstruction works, since the depth of 9 meters was to be attained in front of the quay in the Tallinn Harbour. Considering the wreck was

[2] In the end of the 19th century, because of the change in ships' building material from wood to metal, the emphasis switched completely from protection against "worm" to protection against fouling (Bingeman *et al.* 2000, 220–221).

much better preserved than anticipated, and the dredger was unable to clear the obstacle, the quay constructers were forced to develop a new methodology. The circumstance that delayed the process of reconstruction works and raised the overall costs considerably; furthermore, this situation would have been avoided in case preliminary investigation of the shipwreck site proposed by archaeologists would have been conducted before the actual works on the spot. At this point the wreck was finally surveyed (using divers and side-scan sonar) to determine her exact position and condition. It was found that a very well preserved thick bottom of a massive shipwreck stretched diagonally out from the quay's front wall to the quay ramp's front wall from the depth of 5 meters and covering the corner area of 18 x 11 meters. Based on this information, the best solution for salvaging was decided by harbour constructors - the sediment covering the wreck was to be pumped away and then the wreck would be salvaged piece by piece; an operation which would be done with the help of a diver attaching the chains of a crane standing on the quay to the parts of the ship which were to be lifted. The basket was used to lift the more fragmentary pieces.

THE SALVAGED SHIPWRECK

Fig. 4. Process of salvaging one of the integral parts of the wreck.
Jn 4. Vraki tõstmine pinnale.

The salvaging works were conducted from the end of April through the beginning of May 2007 using the strategy detailed above. This investigation revealed tens of tons of black oak ship parts - both fragmented details, such as copper sheets, planks of inner and outer planking, frames, as well as articulated, whole parts of the bottom (Fig. 4). However, most of the compact parts of the ship, which were lifted, broke apart on the quay or during the transportation to the assembling field. The salvaged material belonged to a sizable ship, built to very high standards and displayed a uniform quality of work. Almost all the remarkably thick copper plates, which covered the ship's bottom, had standardised original measurements[3] and were fastened with copper nails, which were regularly distributed. The skill involved in building the ship was also revealed

[3] Notably, the copper plates from the Tallinn Harbour shipwreck had the exact same measurements as the copper sheets always used by the Royal Navy – the sheets measured 0.356 x 1.219 m (Bingeman *et al.* 2000, 220).

Fig. 5. Technological markers on one of the ship's frames.
Jn 5. Tehnoloogilised tähised ühel laeva kaartest.

by the massive frames, of which every other bore numbers and other technological symbols and markers which were almost calligraphic in style (Fig. 5). The first possible clue as to the wreck's origin was detected by closely examining this "graffiti" on the frames. On one of the frames some letters of the Cyrillic alphabet were documented together with other markers. Due to the salvaged shipwreck's size, quality of construction and manner, she was most likely a wreck of a grand warship.

Beside the structural components of the ship, some minor finds belonging to this wreck, such as ballast stones, parts of the ship's decoration, storage utensils, ropes of different size and blocks were also recovered under water. Because the wreck lost nearly all of her structural integrity on the quay, there was a chance to examine the areas between frames, planks and keel as well. As a result, minor pieces of different kinds of pottery were discovered, as well as a part of a clay pipe and a shred of treated flint. During the conscious inspection of the bottom by the keel, which was only possible because the planks and frames had loosened from the keel, leaving a narrow gap in between, a large coin was discovered tightly wedged under the frame. This proved to be a Russian, Catherine the Great copper 5 kopeck from 1794 (Fig. 6) solving the question of the ship's origin and dating. But was the coin placed on the bottom of the ship during building, which has been a phenomenon quite usual in shipbuilding, or was it perhaps just lost by some unfortunate sailor? An argument for the coin being deliberately placed where it was, is the fact that a copper screw was detected right beside the coin (Fig. 7). This little object is quite remarkable in the context of the 18th century, since metal screws started to spread only at the very end of the cen-

Fig. 6. Russian empress Catherine the Great copper 5 kopeck from 1794.
Jn 6. Vene keisrinna Katariina II vask 5-kopikaline 1794. aastast.

tury when machine tools for mass production were developed (for further reading Rybczynsky 2000). Thus, when this ship was built, machine-made metal screws were a novelty and therefore the builder might have decided to place both the coin and the screw on the bottom of the ship.

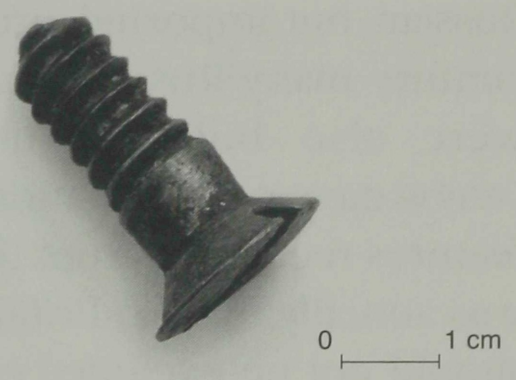

Fig. 7. Copper screw discovered right beside the coin.
Jn 7. Laevapõhjalt koos mündiga avastatud vaskkruvi.

During the documentation of the salvaged shipwreck parts on the quay, two details drew attention. It became readily apparent that from the differences in size, material and implementation these suggested that clearly the remains of more than one wreck has been recovered. This surmise was confirmed later by a diver who announced that a second ship's preserved bottom could be found directly under the one already recovered. Since this shipwreck was lying deeper than 9 meters, and thereby did not hinder the quay reconstruction work, the Estonian National Heritage Board decided to leave the wreck *in situ*. After the documentation, the better-preserved parts of the lifted, copper sheathed bottom of a Russian warship dated to the final years of the 18th century were submerged in the Baltic Sea.

CONCLUSION

The chronological position and territorial origin of the shipwreck found and salvaged in Tallinn Old City harbour was firstly, indicated by the copper sheathing and the graffiti on frames, but firmly determined on the basis of the coin discovered by the keel. This late 18th century Russian ship was built, based on the salvaged material, from oak – a material high-valued in shipbuilding. The skilled building manner and high quality of construction, as well as the thickness and good quality of the copper plate cover, also indicate the former importance of this ship. The significant expense required to build this vessel would primarily be characteristic for the navy in an 18th century context. However, it is mainly the size of the salvaged parts that point towards the military character of this vessel – the discovered wreck is from a big warship. The frames bearing numbers and other technological symbols and markers indicate at first sight that the ship was not assembled in the area of the material provenience. It is possible that at least the ship's frames were to some extent pre-fabricated and then transported to the final building site – thereof the numbering and markings. The size of the copper sheets, being exactly the same as the ones used in the Royal Navy, hint that likewise the copper sheets used on the ship found in Tallinn Harbour were not

Russian, but imported, probably from Britain. However, at the very end of the 18th century many Russian ships were frequently stationed in England, where vessels were also built, repaired and Russian shipbuilders extensively trained (www.navy.ru/publications/books/shelf/brief/). Thus, considering the diagnostic features recovered from the wreck, the possibility that the Russian ship discussed was actually built in Britain with the mentoring assistance of British shipwrights, should not be excluded either.

The salvaged vessel had some traces of fire on a few of the side planks discovered in the early phases of the dredging works, but lacked these signs on the well-preserved bottom part of the wreck. Thus, the ship probably burned while still afloat. Considering her location in the harbour entrance and position right on top of at least one other shipwreck, it is extremely likely that she was deliberately set on fire. It can further be concluded that due to her location and deliberate placement circumstances that the ship was used after the termination of her active time in the sea as a part of the harbour construction.

CRITICAL AFTERTHOUGHTS ON THE PROCESS

The most unfortunate aspect of the process described above is the lack of a thorough preliminary investigation of the site. Had this been conducted, a more suitable methodology for the removal and recovery of the shipwreck could have been designed. A clear and empirically based idea of what to expect at a site puts the investigator in a better position and tends to minimize unpleasant, last-minute surprises. In the actual case, delay to the harbour construction could have been avoided as well. Even if the archaeological information gained during the monitoring of reconstruction works in Tallinn Harbour was new and important for Estonian (maritime) archaeology, I consider the patronizing attitude towards archaeological expertise during the planning stage of the investigation strategy destructive to the physical, contextual, and informational integrity of the archaeological resources, as well as to scholars' abilities to conduct meaningful work on the material. The chosen strategy, established mainly with the help of a nautical expert and heritage professionals lacking any empirical basis for the determination, is a distinct deemphasizing of the importance of controlled archaeological methodology and critical interpretation of the past in favour of wild speculation (Gohacki 2007, 23, 27).

Acknowledgments

The author kindly thanks Mark W. Holley for his help in preparation of the final version of this article.

References

Bingeman, J. M., Bethell, J. P., Goodwin, P. & Mack, A. T. 2000. Copper and other sheathing in the Royal Navy. – The International Journal of Nautical Archaeology, 29: 2, 218–229.

Cederlund, C. O. 1983. The Old Wrecks of the Baltic Sea. Archaeological recording of the wrecks of carvel-built ships. (BAR International Series, 186.).

Gohacki, B. W. 2007. Slavers, Swashbucklers, and Salvors: the Ethics of Public Presentation in Nautical Archaeology. – Contemporary and Historical Archaeology in Theory. Papers from the 2003 and 2004 CHAT conferences. (BAR International Series, 1677.). Oxford, 23–30.

Ilves, K. 2008. Vrakiarheoloogiast ja ühest laevavrakist Tallinna Vanasadamas. – Eesti laevanduse aastaraamat 2008. Tallinn, 136–142.

Rybczynsky, W. 2000. One Good Turn: A Natural History of the Screwdriver and the Screw. Harper Collins, Toronto.

www.navy.ru/publications/books/shelf/brief/

www.portoftallinn.com/_up/image/vanasadam/aero2007vanasadam.jpg

E-mail from Maili Roio to the author 15.02.2007

ARHEOLOOGILISED JÄRELEVALVETÖÖD TALLINNA VANASADAMA REKONSTRUEERIMISEL

Kristin ILVES

Tallinna Vanasadama 1. kai rekonstrueerimistöödel avastati 2006. aasta lõpus mustunud tammepuust laevavraki osad (jn 1). Täävitükkidena tuvastatud ja ehitaja poolt pinnale toodud neljal massiivsel detailil oli nii vanemaid kui ka värskemaid murdejälgi (jn 2). Muinsuskaitseamet hindas laevavraki kultuuriväärtusega leiuks, mida tuleb arheoloogiliselt uurida. Lähtudes uurimistööle esitatud metoodilistest nõudmistest ja kai rekonstrueerimistööde ajagraafikust koostati arheoloogiliste eeluuringute plaan, milles nähti ette vraki täpse asukoha, suuruse, kuju ja seisundi kindlaks tegemine ning objekti edasise uurimise vajalikkuse ja potensiaali hindamine. Muinsuskaitseameti poolt esialgu heaks kiidetud eeluuringute plaan hinnati ebaotstarbekaks pärast Eesti Meremuuseumi eksperdi seisukohavõttu. Enne uurimistööd pinnale toodud laevavraki detailide ja Meremuuseumis paiknevate arhiivimaterjalide põhjal oletas ekspert, et avastatud vrakiosad on 17. sajandist pärit Rootsi sõjalaeva *Draken* vööridetailid. Ühtlasi arvas ekspert, et seda vrakki pole mõtet fragmentaarsuse tõttu põhjalikumalt uurida. Lähtuvalt eksperdi arvamusest tegi Muinsuskaitseamet otsuse, et vraki võib tuua pinnale tavapärase süvendustöö käigus arheoloogilise järelevalve all. Järelevalvetöid tegid OÜ Agu EMS ja käesoleva artikli autor.

2007. a märtsi lõpus toimunud süvendustööde käigus toodi pinnale peamiselt vandest kaikonstruktsioonidest pärit materjali, palke ja kive. Kai nurga läheduses, kus kõigi eelduste kohaselt paiknes laevavraki kompaktsem osa, ilmus ja/või tõstis süvendaja kopp pinnale aeg ajalt ka laevavraki juurde kuuluvaid üksikosi, mis siis maal välja õngitseti ning eraldati kaikonstruktsioonide juurde kuulunud palkidest. Arvestades kasutusel olnud tehnika võimsust ja otstarvet, kadus nii mõnigi laevavraki juurde kuulunud fragment süvendatud põhjamuda ja -setete massi. Samuti võis kuivale maale toodud mõnekümnel laevavraki osal, peamiselt pardaplankudel, täheldada lisaks vanematele murdejälgedele ka süvendustöödega tekitatud värskeid kahjustusi. Ilmselgelt murti pinnale toodavad fragmendid lahti kompaktsemalt säilinud vraki küljest. Kirjeldatud süvendustööde käigus oli võimatu määratleda pinnale toodud laevavraki osade täpset paiknemist vee ja maa all. Kai nurk, kus kõigi eelduste kohaselt paiknes laevavraki paremini säilinud osa, jäeti küll süvendustööde päris viimasesse järku, kuid sellest piirkonnas ei suudetud hoolimata kopa suurusest ja selle taga peituvast jõust veest välja tuua midagi, sest kopp libises tollal veel tuvastamata takistuse peal. Kopa tööd takistanud tõkke teemassse tõi selgust pinnale kerkinud 4,8 x 0,8 x 0,11 m suurune laeva pardafragment, mis oli kaetud 8 vaskplaadiga (jn 3). Metalliga kaetud laevapõhja paiknemist kai nurgas kinnitas ka vee all olukorda kontrollimas käinud tuuker. Seega, süvistusmasinatele üle jõu käiva takistuse moodustas laevavrakk, mis oli vastupidiselt eksperdi arvamusele märksa paremini säilinud.

Kuna laevavrakk takistas sadamakai ääres vajaliku veesügavuse saavutamist, tuli see pinnale tuua teisi meetodeid kasutades. Sadama ehitaja otsustas, et optimaalsemaks lahendusvariandiks on vrakki katva u 2 m paksuse pinnase eemale pumpamine ning seejärel laevavraki tükkhaaval välja tõstmine. Nende tööde käigus sidus vee all töötav tuuker kail seisva kraana ketid järjest vraki osade külge, misjärel kraana need kaile tõstis. Fragmentaarsemate osade tõstmise juures kasutati ka korvi. Pinnale toodi nii eraldiseisvaid fragmente, vaskplaate, sise- ja välisplangutuse planke ning kaari ja nende juppe kui ka kompaktselt ühtekuuluvaid laevapõhja osi (jn 4).

Maale toodud mustast tammest materjal kuulus suure laeva juurde, mis oli ehitatud tugevalt, korralikult ja kvaliteetselt – laeva ehituslaad oli ühtne. Peaaegu kõik laevapõhja kunagi katnud vaskplaadid olid hea kvaliteediga, üsna paksud ning originaalis ühesuurused. Plaadid olid laeva külge naelu-

tatud vasknaeltega. Aluse märkimisväärselt oskuslik ehitusstiil väljendus ka massiivsetes ja ehituslaadilt homogeennsetes laeva kaartes, mis olid markeeritud numbrite ja teiste tähistega (jn 5). Laevavraki osade mõõtmeid, materjali ja ehituslaadi silmas pidades on leitud vraki näol tegemist ilmselt kunagise Vene sõjalaevaga. Selle ajalisele kuuluvusele osutas vrakki katnud vaskplekk, mis dateeris aluse vahemikku 1750–1850, mil traditsiooniliselt kasutati laevapõhjade vaskplekiga katmist. Täpsemalt dateeris vraki ning lahendas selle päritolu küsimuse laevapõhjal asunud 1794. aastal vermitud Vene viiekopikaline (jn 6). Koos mündiga oli laevapõhjale kinnitatud ka vasest kruvi (jn 7), mis välistab vaskraha laevapõhjale juhusliku pudenemise.

Juba tõstmistööde käigus välja toodud vrakiosade dokumenteerimisel äratasid tähelepanu kaks detaili, mis oma suuruse, materjali ja teostuse poolest pidid kuuluma teise laeva juurde. Seda oletust kinnitas ka tuuker, kes teatas, et esimese laeva all on säilinud veel teinegi vrakk. Kuna see asus 9 meetrist sügavamal ja ei jäänud ette Vanasadama 1. kai rekonstrueerimisega kaasnenud süvendustöödelele, võeti Muinsuskaitseametis vastu otsus jätta nimetatud objekt oma kohale.

Vanasadama 1. kai juures toimunud süvendamistööde käigus pinnale toodud 18. sajandi lõpust pärineva Vene sõjalaeva vraki paremini säilinud osad uputati tagasi Läänemerre.