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Food Aboard! Eating & Drinking Habits on French Frigates of the Early-18th century, according to the Natière Shipwrecks, France

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The underwater archaeological excavation of the Natière site, St. Malo, France, has brought to light the remains of two French frigates sunk in 1704 and 1749. The project has been carried out as a global study, in order to compare material culture, hull structures, supplies and outfitting of the ships. Artifacts related to food and drink aboard represent the most numerous finds (24% of the total amount of recorded artifacts). Food storage, food remains, cooking processes and distribution of the meals are discussed in this paper, according to the archaeological data from the site, in comparison with French archival sources.

Food's ready! On land or at sea, the expression has always drawn a crowd. However, eating and drinking artifacts appear to be quite often left out of scholarly studies in underwater archaeology. The goal of this paper is to point out some of the valuable archaeological information gathered on this material and what it reveals about daily life aboard ships, according to the archaeological evidence found in two historical shipwrecks. Both wrecked on the Natière reef, less than 1 nautical mile off St. Malo, on the north coast of Brittany, France. These two ships have been the subject of an important underwater archaeological excavation carried out from 1999 to 2008 by Michel L'Hour and the author, on behalf of the French Ministry of Culture (Département des recherches archéologiques subaquatiques et sous-marines, DRASSM) and the Association pour le développement de la recherche en archéologie maritime (ADRAMAR) (L'Hour 2009:1).

The shipwrecks have been identified as two Norman frigates, *Dauphine* and *Aimable Grenot*. The light frigate *Dauphine* was built in 1703 in Le Havre royal dockyard, for the French King, Louis XIV, and entrusted to private outfitters for privateering. It sunk on 11 December 1704. The larger frigate *Aimable Grenot* was built in 1747 in Granville by a private outfitter, and was also dedicated to privateering. After two years of operation, it sunk during its ill-fated, maiden trading trip, on 6 May 1749 (see location map on Figure 1).

Both *Dauphine* and *Aimable Grenot* originated from Normandy, France, but are the product of distinct economical and political contexts. The two ships sunk in St. Malo, 45 years apart, and played a key role in Atlantic maritime exchanges, by means of captures and active privateering.

The Natière Wrecks Project has been carried out as a comparative and global study of the dual site. Apart from architectural remains, more than 3,100 significant artifacts have been recorded on the two wrecks. Among them, objects related to food and drink aboard represent about 24% of the total number of recorded artifacts (Figure 2). With almost a quarter of all the artifacts being associated to food and drink, this is the most abundant group of finds, and offers great opportunities for functional and typological studies.

Main kinds of containers, types of food remains, cooking processes features as well as food and drink service aboard ships will be successively discussed in this paper, both in terms of functions, forms and materials. The notion of collective items and personal utensils will also be talked about. This paper will conclude with a brief recap of eating and drinking artifacts, an amazing field of investigation for underwater archaeological studies.

Food Storage

Casks and Barrels

Concerning food storage, men aboard have to contend with three important parameters: shipboard space is limited, sufficient quantities of food have to be stocked to ensure there is enough for the duration of the trip, and storage has to be efficient to avoid waste and rotting. These competing needs have to be taken into consideration when choosing the most convenient, stackable, and reusable containers for the intended proper use.

First and foremost, cooperage containers were numerous aboard, and were not only used for liquid storage. Barrels and casks offered the great advantage of being easily stackable, and could also be firmly wedged by logs in the hold or between decks. The *Dauphine* (1704) and *Aimable Grenot* (1749) shipwrecks held

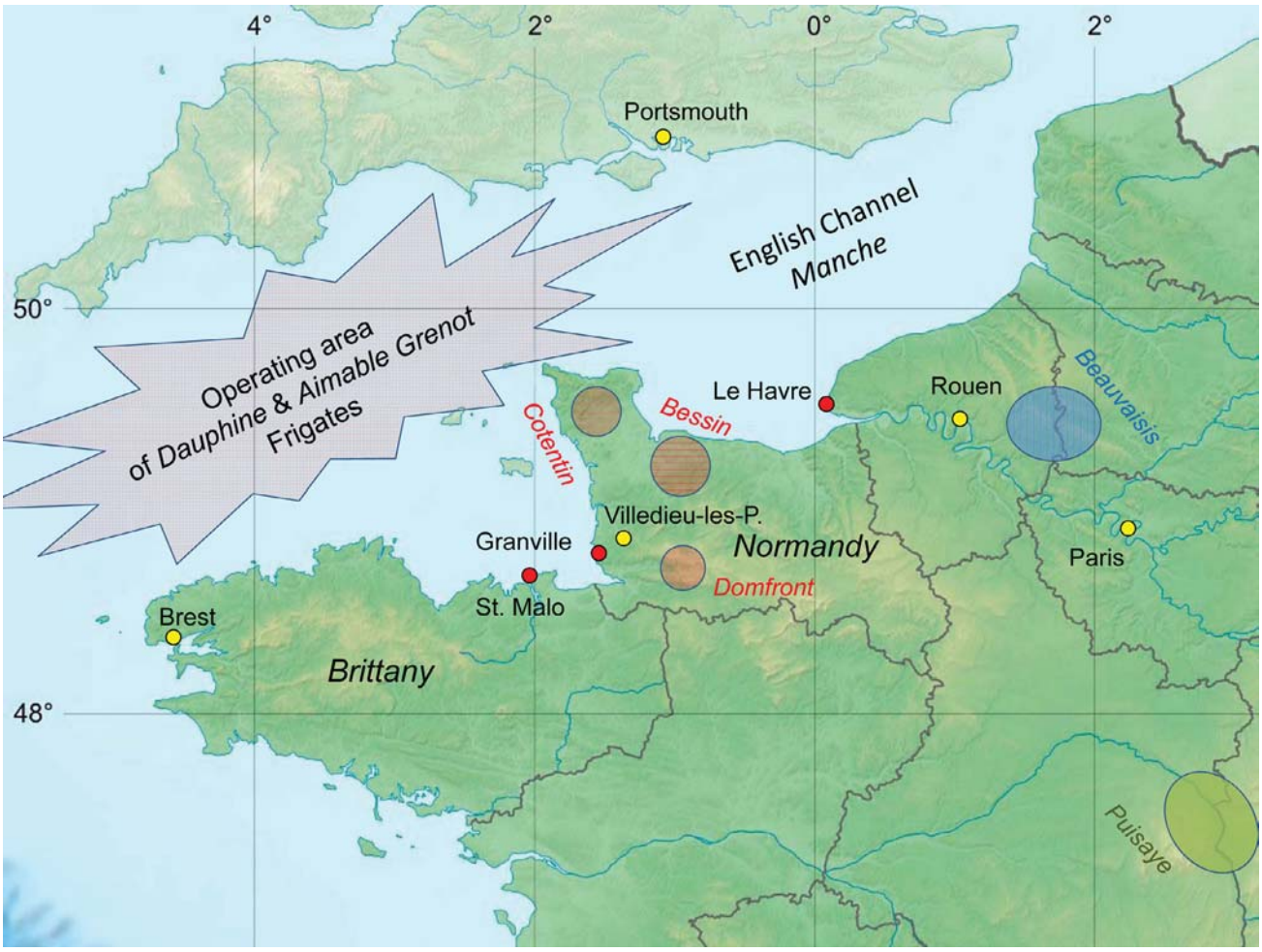

Figure 1. Map of North-Western France, focusing on St. Malo, Le Havre and Granville. The Norman stoneware workshops of Domfront, Bessin and Cotentin are highlighted, as well as the stoneware productions of Beauvaisis and Puisaye (Drawing by the author, 2014; France relief location map courtesy of Éric Gaba, 2008, for Wikimedia).

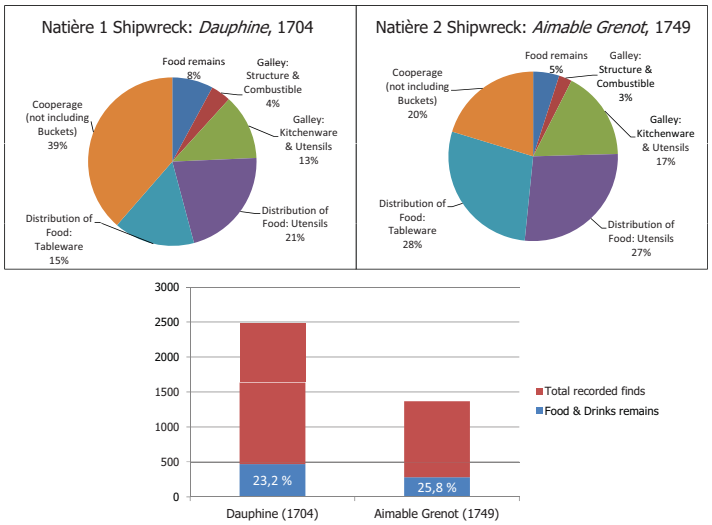

Figure 2. Representative diagrams of food and drink artifacts on the Natière shipwrecks (Diagrams by the author, ADRAMAR, 2014).

a number of large oaken casks, with iron hoops, set lengthwise in the hold. With an average volume of about 450 liters and a length of about 4 French ft. (128-130 cm), these casks are identified as pipes or butts used to store wine and water aboard. Once emptied, these containers could be dismantled to gain some precious space on board. In fact, the *Dauphine* shipwreck has revealed evidence of a large cask deliberately dismantled for this purpose. These loose staves are interpreted as a *botte en paquet preste a monter* (butt in bundle ready to be assembled), as mentioned by French archives ships' inventories (Rennes, Archives Départementales d'Ille-et-Vilaine, 9B249; Minutes du greffe 1714; *Inventaire de la frégate le* Diligent, 1713).

The two wreck sites offer various sizes of barrels, with multiple engraved marks. Most of these have not been identified yet, but a few inscriptions from the *Aimable Grenot* shipwreck may refer to the content of the barrel: *LAR* (lard for bacon), *BEVRE* (*beurre* for butter), and even *LYME* (for *lime*). Some barrels have been identified by their content, such as an oak barrel 67 cm long and of a volume of 100 liters, found in the stern of the *Dauphine*. It contained 197 bones from a nearly completely butchered young cow (Migaud 2011: 287).

Besides their original utility aboard, casks and barrels could be reused, either as containers for other content, or dismantled for other purposes. In the latter case, staves and heads were reused as raw material, as shown on the *Dauphine*, where hammock spreaders were most likely made from oak staves (Dégez 2009:31). Furthermore, about 15 oak barrel staves cut in halves have been found in the forepart of *Aimable Grenot*. They are probably the testimony of a cutting up process on board, in order to provide pieces of good wood for shipboard woodworking.

Jars and Bottles

Several French Norman stoneware jars and bottles have been found in the bow section of the *Aimable Grenot*. Alongside wooden casks and barrels, they were used for food and liquids. All of them are believed to come from Domfront area, in the southern part of Normandy (Figure 1). Eight rather standardized jars, with one flat handle, are attested, their heights vary between 24.7 and 27 cm, their diameter between 18 to 18.5 cm. Originally intended for butter, these could also have been reused for other purposes. Thirty-one bottles about 28 cm high, some of them still corked, have been inventoried. They were likely used for storing cider.

Three Norman stoneware jugs, with a round handle, have been found together. Unlike the previous jars and bottles, these are believed to be from the Bessin/Cotentin area (Figure 1). The analysis of 56 seeds found in one of these jugs has revealed *capsicum* or sweet pepper seeds (Faucher 2012). This very likely induces a shipboard reusing of the jug. Unfortunately, the two other jugs were found broken and it was impossible to analyze their content.

A few Norman stoneware sherds were found on the *Dauphine* shipwreck, but the most numerous finds are French Puisaye and Beauvaisis stoneware jars, bottles and jugs (Figure 1). In addition, two Bartmann or Bellarmine jugs have been recorded. A few glazed earthenware jars and bottles are present on the *Dauphine*, but the most impressive container is a massive Iberian style earthenware jar with flat bottom and two horse-shaped ears (Nat 138, Figure 3). It measures 59.3 cm in height, with a capacity of 47 L, and was probably used to store fresh water in the galley.

About ten of the glass wine bottles found in the *Dauphine* galley area were wrapped with leather and placed inside kettles, or put on pewter dishes where they were wedged in by twig bundles. More than

Figure 3. Earthenware jar Nat 138 (Dauphine, 1704) and copper cauldron Nat 2563 (Aimable Grenot, 1749) (Photos by Teddy Seguin, ADRAMAR, 2010 & 2013).

Food Remains		Dauphine (1704)	Aimable Grenot (1749)
Faunal Remains	Beef (*Bos taurus*)	758	158
	Pork (*Sus scrofa dom.*)	96	355
	Mutton (*Ovis aries*)	50	7
	Chicken (*Gallus gallus*)	23	1
	Goose (*Anser anser*)	4	
	Duck (*Anas*)		2
	Bird (Quail ?)	4	
	Rabbit (*Leporidae*)	1	
	Not identified	328	169
Fish	Cod (*Gadus morhua*)	28	17
	Pilchard (*Sardina pilchardus*)		41
Plants	Coconut	22	
	Nut	2	
	Chestnut	2	
	Capsicum seeds		56
	Bay tree leaf	1	1

Table 1. Food Remains Aboard The Two Natière Shipwrecks

cargo storage, it appears rather as a secondary practice, showing the improvisation of the crew members, anxious to protect the precious bottles from the movements and the shock of a ship at sea.

Other Containers

Apart from these previous containers, the two shipwrecks show very little evidence of other types of containers. Textile bags, for example, would have the great disadvantage of being easily ripped and eaten by rats. As a matter of fact, such bags have not been recovered on the site, but very few ships' inventories have archival sources refer to them, apart for biscuits. Regardless, it can be imagined that huge amounts of easily available grains and biscuits would have been a dream for some undesired free-rider rats!

Food and Meat

Except for a few coconuts, *capsicum* seeds and others plants, food remains are mostly composed of faunal remains on the two shipwrecks (Table 1).

On the *Dauphine* and *Aimable Grenot* shipwrecks, respectively 1,297 and 746 bones have been recovered. They were mostly found in the galley area, with the exception of preserved beef stored towards the stern of the ships, which likely was reserved for the officers' meals.

Most bones come from beef (59%) on *Dauphine*. However, supplies appear to be rather diversified, with pork, mutton, chicken and goose, to complement the beef. Even some small bird bones and a rabbit bone have been recovered (Migaud and Perez 2013). Furthermore, the discovery of dozens of pork and beef hyoid bones together confirm the presence of mixed pork and beef preserved tongues in the galley of the *Dauphine*.

The *Aimable Grenot* had more pork than anything else (48%), but beef, with only 21%, represents 2/3 of the total weight of all recovered bones.

Pilchards bones have been found in the bow area of *Aimable Grenot*, and the two wrecks have revealed some cod bones, sometimes in the most unexpected places, such as in a calabash gourd found nearby the *Aimable Grenot* galley (Myriam Sternberg 2011, pers. comm.).

Aboard the *Dauphine*, the discovery of cod vertebrae in a copper colander highlights one of the last activities performed aboard the ship. The colander had been placed in a pewter dish and wedged in place with a pewter spoon. Preserved from the chaos that accompanied the foundering of the ship, this may reveal the last meal prepared aboard the ship. The cook, or

perhaps another crewmember, had placed the soaked salted cod in the colander to drip, and then placed the recipient on the floor, to prevent it from tipping with the ship's movements.

Cooking Process

Built to provide for hundreds of sailors, the two frigates revealed a number of archaeological finds relating to cooking aboard the ships, starting with the galley. Piles of fallen bricks, iron concretions and kitchenware shuffled around, allowed recognition of the galley's location at the forepart of the two ships. Aboard the *Dauphine*, the galley appears to have been built on a single deck, under the forecastle deck. Aboard the larger *Aimable Grenot*, it was set on its lower deck, to free up the upper deck for the ship's ordnance.

Archaeological evidence of kitchenware gives precious indications about cooking practices aboard, but also reveals the supplying networks. In this way, cookware aboard the two Norman frigates highlights different purchasing networks: Aboard the *Dauphine*, two earthenware stock pots from south-western France reveal the long-distance maritime purchasing network linked to the royal dockyard of Le Havre. On the other hand, the copper kettle found on the *Aimable Grenot* (Figure 3) is identified as a local supply from Villedieu-les-Poêles, 30 km from Granville (Figure 1). This small town is well known for its craftsmanship of mending and patching up old kettles to turn them into new ones. The *Aimable Grenot*'s private outfitter had clearly given advantage to local and cheap supply.

During the excavation, the galley area allowed the identification of artifacts of previously unknown purpose, such as some copper alloy larding needles (presumably used to insert strips of fat through roast beef) on the *Dauphine* (Gérard Villeval 2002, pers. comm.) (Figure 4), and a pewter sausage funnel on the *Aimable Grenot* (Philippe Boucaud 2007, pers. comm.). Two identical copper alloy bowls, found in the galley area on each wreck (Figure 4), have been identified as braseros, used to reheat major officers' meals (Phil Dunning 2005, pers. comm.). A variation in size was observed between the two stoves: the *Dauphine*'s stove had a width of 19.4 cm, whereas 26 cm in width was recorded on the *Aimable Grenot*.

Distribution of Food & Beverages

The *Dauphine* and *Aimable Grenot* shipwrecks share several features in the crockery and utensils used for serving meals and drinks. This important daily activity, aboard a rolling and pitching ship, seems to be logically associated to a predilection for specific forms and materials. A large copper alloy can, found in the galley of the *Dauphine*, gives a good indication of such an adaptation to sea. This 36 cm high container, which is 10 pints in capacity, has a specific device allowing it to stay stable even in rough seas: it is fitted with a thick and heavy lead base preventing it from tilting (Nat 116) (Figure 4).

A Selective Crockery

An obvious preference for wood and pewter, as opposed to pottery and glass, was observed. Pewter and wood are, of course, far less fragile. Furthermore, pewter does not rust like iron. An impressive amount of pewter plates were found on each wreck, most of them in piles: 33 plates on the *Dauphine* and 28 on the *Aimable Grenot*. This represents nearly 90% of all types of plates recovered; the rest of the plates were composed of some earthenware and faïence.

Bowls and spoons, which would have been convenient for serving soups and broths, the main type of dish taken aboard, were found on both wreck sites. Thirty-five bowls made of various materials were found on the two wrecks. Most of them are made of wood (43%), but some coconut bowls were recovered on the *Dauphine*. Some earthenware, Rouen faïence and pewter bowls were also found on the two sites.

Twenty-nine spoons have been recovered across the two wrecks sites. Of these spoons, 15 are made of pewter, and 14 are made of wood. One fork was found on the *Dauphine* and two on the *Aimable Grenot*.

Earthenware, faïence and stoneware appear to be restricted to a few crockery and table containers: earthenware for jars, jarlets, plates and bowls; faïence was the most common for cups and small pitchers, whereas stoneware was used for jugs and bottles. Glass tableware is limited to a single stem glass and three goblets found

on the *Aimable Grenot*. These were discovered in the aft part of the ship, with the forks.

Personal Crockery and Collective Devices

Amongst the tableware and the crockery, some items are believed to have been personal belongings. Their uniqueness as well as their proximity to other artifacts found nearby certainly point that way. For example, the discovery of a coconut bowl and a wooden bowl, stored together with a bone whistle in the forepart of the *Dauphine* indicates that these were likely items belonging to an individual. Some other artifacts were identified as collective items, such as the 11 beech bowls found on the *Aimable Grenot*, which are believed to be part of the ship's supplies.

Besides typology and archaeological context, archaeodendrochronometry appears to be a very innovative way to distinguish wooden personal tableware and utensils from those supplied by the outfitter. In that respect, the Natière study is greatly helped by the massive analysis of shipboard wooden artifacts conducted since 2011 by Catherine Lavier (LAMS / CNRS / UPMC).

Among the food and drink objects used for service aboard the ships, evidence of low buckets was found during the excavation of the two sites. According to XVIIIth ships' inventories and historical sources (as in 1763 Deslongchamps the Oldest manuscript, Bibliothèque municipale de Brest, MS54, fol. 152 : «*Gamelle de 7 matelots*»), these were gamelles, a kind of dish where crewmembers ate their meals in groups of seven. One of the dishes has an engraved IIM (Nat 2645) (Figure 4). This could designate the second group of seven sailors, known as *Matelots* in French.

Aboard the ships, wine and water were stored in the hold and their distribution to the crew was done using a small portable container, or mess-kid, referred to as a *bidon* in French archival and historical sources

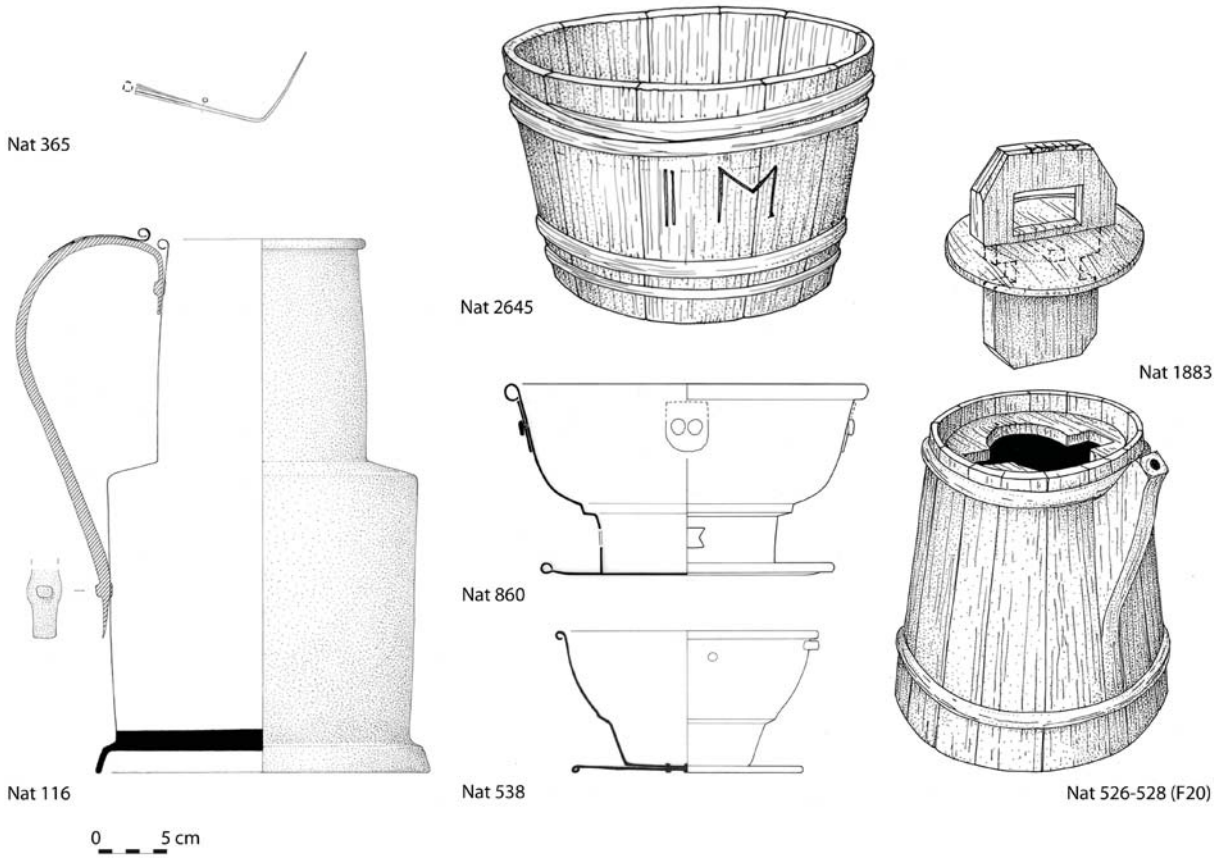

Figure 4. Artifacts from the Dauphine wreck site (1704): copper alloy needle Nat 365, can with a lead basis Nat 116 (underlined in black), copper alloy stove Nat 538, oaken container or mess-kid F20 with lid handle Nat 1883. Artifacts from Aimable Grenot wreck site (1749): copper alloy stove Nat 860, oaken bucket or gamelle Nat 2645 (Drawings by Marie-Noelle Baudrand, ADRAMAR).

(Deslongchamps 1763:152). The daily ration stipulated by the French 1689 naval armies ordnance was 3/4 of a pint of wine (0.69 liter) watered down with the same amount of water (1689 Ord Torchet de Boismêlé and Bourdot de Richebourg :[X](3):5, Titre 3, article 5).

The excavation of the *Dauphine* shipwreck allowed for the understanding of the mess-kid's closing device used by the French Royal Navy during the reign of Louis XIV. This closed a 14-year enigma concerning the use of unidentified wooden disks and keys found on several wrecks of the period (L'Hour and Veyrat 2003:180). A perforated disk acts as a permanent lid for the mess-kid, while a full disk and key is used as a removable cover. The key is assembled into the full disk and inserted into the mess-kid lid where it is then rotated in order to lock it. This system enabled to close and carry the mess-kid (Nat 526, 528 & 1883, F20) (Figure 4).

Forty-five years later, a different system was used to close the mess-kids found on the *Aimable Grenot* shipwreck. This time, the container had no locking mechanism; a removable lid sliding on a simple rope threaded through two holes was utilized in order to cover the container and carry it. The mess-kids of the *Aimable Grenot* were no doubt simpler and less expensive to produce than those aboard the *Dauphine*.

The two shipwrecks have revealed a large range of portable containers for the distribution of drinks. They are equally made of wood, copper, tin, glass, earthenware and stoneware. In addition, the *Dauphine* shipwreck has preserved the remains of a tarred pot-bullied leather pitcher, known as a black jack or bombard in English sources. This was first identified as a leather canister box.

Food and Drinking Aboard, an Amazing Field of Investigation!

Aside from their huge representation on the archaeological site, (about one quarter of all recorded objects of the Natière site) the study of food and drinking artifacts is of great interest. These artifacts offer significant information that archaeologists should pay more attention to.

From a methodological viewpoint, the Natière excavation has shown the importance of screening materials for identifying grains and macro-faunal remains. Every time screened soils were analyzed, valuable information was obtained. But it was often difficult to find funding and a specialist to manage the screening analysis process after the excavation. Some bags have had to wait for years before being analyzed. All things considered, it is more beneficial to proceed with imperfect on-site screenings, during each field season, than to wait on lab results. The first ones are more likely to guide the excavation progress.

During the archaeological excavation of a shipwreck, artifacts related to cooking and galley are of great help in estimating the preservation of the site: In fact, it can be expected that a site where numerous bricks are still preserved piled up on top of it will be in good shape. Galleys were usually set on the first or second deck, quite high in the hull. From this aspect, they are more susceptible to salvage and marine erosion.

Furthermore, food and drink artifacts are precious indicators for the identification of vessel's flagship. In the case of the privateer frigate *Dauphine*, which had just come back from a raid at sea when it sank, things can be very puzzling. The presence of many English items in the forepart of the ship could induce an English flagship, but, according to the archives and considering the archaeological context, it is now believed that these objects were probably captured items or personal belongings of the English sailors brought onboard. Besides, *Dauphine*'s tableware appears of complex provenance, as stamps on pewter plates indicate some mixed origins: London, Le Havre and St. Malo. These connections could be explained by the historical process and itinerary of the frigate in 1703 and 1704.

As a matter of fact, the various origins of food and drink artifacts are a key indicator of massive supplies and exchanges from France, Europe and the world over. On the Natière site, these were taking place because of trade, privateering and from a global exchange network, which provided the most suitable items for the lowest cost and correct function aboard the ships. The two frigates act as a melting pot, a mixing process and an accelerator of exchanges in the western maritime world of the XVIIIth century.

Beyond exchanges and trade, the Natière shipwrecks contain an amazing assemblage of objects linked to onboard material culture and daily life of crewmembers. Among this assembly, some standardized items and key utensils related to food and drink aboard were clearly identified. No doubt that new data and further typological studies, particularly for wooden objects, will contribute to a comprehensive understanding of material culture aboard historical ships.

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