Advances for the foundation of the Technical Anchors Museum at the Nautical School of Bilbao

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Abstract

The anchor is, perhaps, the most representative element in navigation and ship construction. It is frequently used in logos of the naval industry and naval institutions, and it is also selected to represent the marine aspect of other industries (textile, food, etc.). Besides, most of the Maritime Museums of the world have big Admiralty anchors at the main entrance.

Although the most represented type of anchor is the Admiralty, this element has had a continuous evolution throughout time. From the first stone anchor to the last big anchors used in off-shore industry, there is a wide typology of anchors, many of them being still used nowadays.

Both the symbolism of the anchors as well as the variety of shapes and types of this element make the foundation of a thematic museum interesting, dedicated to anchoring in vessels. The purpose of this museum is twofold:

- To approach the maritime heritage and culture to the Society, through one of its most representative elements
- To reinforce the role of the University as conservator of the Maritime Heritage.

The content of this paper is aimed at presenting the project and initial phases for the creation of this museum, which will be located at the Nautical School of the Basque Country University, in Bilbao.

Keywords: anchor, Technical Museum, anchor gear, windlass.
1 Introduction

One of the most representative elements of the Basque Country identity is its Maritime Heritage. This legacy started centuries ago, as a tradition of fishing, merchant navy and naval construction. As a consequence of this maritime history, some important Maritime Museums have been created in this region to preserve and disseminate the wide Basque’s Maritime Heritage: Maritime Museum Ría de Bilbao; Naval Museum of San Sebastián; Archaeological, Ethnographical and Historical Basque Museum of Bilbao; Fisherman Museum of Bermeo and Plasentia de Butrón Maritime Museum.

The anchor is one of the earliest artefacts made by man. The stone anchor that secured his craft prior and during the Bronze Age is still used today close to shore by fishermen around the world. Developed through time into the large heavy iron instrument which dropped from a ship into the bottom of the sea keeps her in a proper situation from being driven away by the wind or tide, the anchor is arguably the most important piece of safety equipment, without which no prudent mariner would take to the seas.

The importance of the anchor is due not only to its key role in navigation, but also to its significance within the maritime world, as it is often used as a symbolic element to represent prestigious maritime institutions and other items related to Nautical issues. Today, the anchor is familiar to landsmen and seamen alike as an emblem on cap badges, public house signs and heraldic splendours. In spite of the technical and historical importance and significance of this element, any relevant world overall Museums, specifically dedicated to this item are known by the Authors. Very often, Maritime Museums show a single anchor (normally, an Admiralty anchor) or a small collection of these elements, but their working principles, technical description, typology, etc. are rarely described. Therefore, the creation of a Technical Anchor Museum is a novelty within the Maritime Heritage exhibitions, that could contribute to disseminate and make aware to new generations about the importance of Maritime Heritage.

2 Purpose of the Museum

Although anchor is apparently a very simple element, it has been suffering a continuous evolution, being more and more adapted to the new requirements of Marine industry. From the earliest stone anchor to the novel big off shore anchors, materials, size, shape and working principle of this element have been changing throughout time, thus reflecting also the evolution of Navigation and Marine technology.

Due to their extreme importance in ships safety, anchoring and mooring are topics frequently studied in most of Marine Schools, but the evolution of anchors and anchors gears is just spotted in the bibliography, and any rigorous exhibition showing technical principles of anchors and their evolution along their 4000 years of history can be found worldwide. For this reason, the creation of a thematic museum on this topic is a novelty, that can help present and future marines and the Society, in general, to understand how anchors work, and why
they had had to be continuously adapted to fit the new requirements of the naval industry.

The primary aim of this Museum will be the creation of a permanent thematic and monographic expositive area concerning anchors and anchor gears of vessels. Although the historical evolution of anchoring will be considered, the Museum will be mainly focused on technical aspects of these elements. It will be mostly addressed to young people and scholars.

Main objectives of this initiative are:
- Approach the maritime heritage and culture to the Society, through one of its most representative elements
- Reinforce the role of the University as conservator of the Maritime Heritage
- Contribute to make aware to new generations about the importance of Maritime Heritage, by addressing this exhibition area mostly to scholars and university students
- Facilitate the learning and understanding of anchoring principles and characteristics of anchor gears by the Nautical School students, by showing these elements in a technical thematic exhibition area
- Improve the local development of less developed areas around the Museum, by placing a new Cultural initiative in a strategic emplacement within this area
- Contribute to preserve the Basque Maritime Heritage, through the collaboration with other Maritime Museums

3 Project description

3.1 Description of exhibition area

The present building of the Nautical School of Bilbao was built in 1968, between Portugalete and Santurce villages, at the riverside of Bilbao estuary. It is an emblematic concrete building, recreating the aspect of a merchant sailing vessel. Apart from the classrooms, the School has also technical laboratories, planetarium, audiovisual rooms, workshops, auditorium, navigation simulator, etc. At present, 450 university students are studying at the School, being distributed in two degrees.

3.1.1 Indoor exhibition area

This area is divided into two parts: the entrance and the hall, being both separated by means of a crystal door and wall.

The entrance, placed at street level, is the access into the hall and auditorium, with a capacity of 1000 people.

A poster to advertise the Anchor Museum will be placed at the crystal door or wall.

Both the entrance and hall have a concrete structure formed by 26 circular pillars and corresponding beams. No walls have been built in the hall, thus having a completely open 555 m² surface, perfectly suitable to be used as an exhibition area.
The hall has recently been refurbished, having a new ceiling and a modern lighting system.

The access to upper floors is done by a concrete stair with wood floor, starting from the lateral of the hall. As above mentioned, this hall is also the access into the auditorium, that could be used to show technical films about anchoring, conferences, workshops, and other initiatives concerning technical-maritime aspects related to the new Museum.

3.1.2 Outdoor exhibition area

The Northern façade of the building, recently refurbished, has a crystal door entrance. Both sides of the door are decorated by two big spherical buoys (green and red). There is a 2 m width area along this façade, marked with a coloured asphalt, that could be used to show big anchors. A set of metal pillar and chains could be used to separate this outdoor exhibition area from the rest of the outdoor extension.

3.2 Content description

Although the project is, at present, at the initial phase of development, some preliminary proposals concerning the distribution of the exhibition contents have already been elaborated. Main exhibition areas and contents are:

- Main anchor types, from both merchant vessels and minor boats
- Historical evolution of anchors
- Manufacturing of anchors and chains, as one of the most important industries of the region
- Interactive area about anchors and anchor gears, mainly addressed to young public
- Scale models of different aspects related to anchoring of vessels
- Anchor symbology
- Big anchors outdoor area

4 Description of the present anchor collection

4.1 Brief history of anchors

The earliest form of anchor was probably a large stone or a basket holder filled with stones as used by the Greeks. Whoever actually invented the forerunner to s improved anchor designs is questionable, but it has been linked with the seaman of Tuscany, and/or King Midas of Phrygia.

The initial design was probably a single hook arrangement, to which was later added a second arm to give an opposing hook. A stock bar, set at right angles to the shank was to be added, but other than that the standard anchor remained the same for many centuries. The stocked design being used by the Vikings, Romans, Venetians and the Spanish.

Manufacture varied but the forged iron shank with fixed flukes and an Oak stock would seem to have become a standard formal of early anchors.
When the sailing slip days, gave way to steam and the steel construction of
slips became the norm, new designs of anchors with better stowage properties
began to evolve. The hawse pipe arrangement caused in general the stock to be
removed and what is now recognised as the conventional stockless anchor was to
become widely accepted across the marine industry.

With the growth of larger vessels and off-shore development around the
globe, the need for high holding power anchors became desirable. This led to
prefabrication in designs and greater anchor weight/holding power ratios started
to become acceptable features within all aspects of the maritime environment.

4.2 Description of the anchor collection

At present, the collection of the Anchor Museum of Bilbao has the pieces shown
in table 1.

As main evolution of anchors and anchor gears has happened within XX
century, as a consequence of the important advances of Marine technologies
during this century, most of the anchors shown in the Museum are from this
century. Considering this is a technical museum, the criteria to select anchor
pieces has been mainly based in the technical interest of the type of anchor
instead of the age of the pieces. Nevertheless, some ancient anchors (from XVII,
XVIII and XIX centuries) are also shown.

Besides, a set of 8 pictures, with 209 different types of anchors and anchor
gears are also shown in the indoor area. These 74x54x7 size pictures represent
significant anchor models within 4000 years of the anchor history. The purpose
of these models is to show the historical evolution of anchor throughout time.
The content of each of the 8 pictures is:

- Picture 1: Anchor gears (31 pieces)
- Picture 2: Minor anchors (26 pieces)
- Picture 3: Stock anchors (33 pieces)
- Picture 4: Admiralty anchors (14 pieces)
- Picture 5: Crown stock anchors (15 pieces)
- Picture 6: Patented anchors I (30 pieces)
- Picture 7: Patented anchors II (31 pieces)
- Picture 8: Patented anchors III (29 pieces)

5 Developed activities and present situation

The first activity carried out in 2003 to begin this initiative was the restoration of
an ancient big Admiralty anchor. This anchor was placed at the main entrance of
the building. Besides, a big Danforth anchor was already restored at the
beginning of 2004, and placed at the hall.

From this time to now, the project is being continuing enriched with the
restoration of several anchors (Admiralty, Danforth, Trodman, Baldt, Byers,
Hall, etc.), that are being placed at the building main hall. At present, 15 anchors
are already shown in the exhibition area.
Table 1: Anchor pieces of the Museum.

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
<th>Location</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admiralty – type 1</td>
<td>1800</td>
<td>Indoor area</td>
<td></td>
</tr>
<tr>
<td>Admiralty – type 2</td>
<td>1500</td>
<td>Indoor area</td>
<td></td>
</tr>
<tr>
<td>Klipp – type 1</td>
<td>694</td>
<td>Indoor area Column 16</td>
<td></td>
</tr>
<tr>
<td>Klipp – type 2</td>
<td>610</td>
<td>Indoor area</td>
<td></td>
</tr>
<tr>
<td>Klipp – type 3</td>
<td>698</td>
<td>Indoor area</td>
<td></td>
</tr>
<tr>
<td>Trotman (1852)</td>
<td>298</td>
<td>Indoor area Column 15</td>
<td></td>
</tr>
<tr>
<td>Hall</td>
<td>350</td>
<td>Indoor area Column 20</td>
<td></td>
</tr>
<tr>
<td>Hall</td>
<td>2784</td>
<td>Outdoor area</td>
<td></td>
</tr>
<tr>
<td>Hall</td>
<td>1200</td>
<td>Outdoor area</td>
<td></td>
</tr>
<tr>
<td>Byers</td>
<td>3100</td>
<td>Outdoor area</td>
<td></td>
</tr>
<tr>
<td>Danforth – type 1</td>
<td>1150</td>
<td>Indoor area Column 22</td>
<td></td>
</tr>
<tr>
<td>Danforth – type 2</td>
<td>1662</td>
<td>Outdoor area</td>
<td></td>
</tr>
</tbody>
</table>

Apart from that, up to 10 additional anchors of different types and shapes are being acquired, restored and placed in the Museum.

Two big wooden stock ancient anchors, completely covered by biofouling have been achieved. At present, they are in restoration process.
Table 1: Continued.

<table>
<thead>
<tr>
<th>Anchor Type</th>
<th>Code</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baldt</td>
<td>558</td>
<td>Indoor area Column 19</td>
</tr>
<tr>
<td>Baldt</td>
<td>3270</td>
<td>Outdoor area</td>
</tr>
<tr>
<td>Bruce</td>
<td>200</td>
<td>Indoor area</td>
</tr>
<tr>
<td>Grapnel</td>
<td>100</td>
<td>Indoor area</td>
</tr>
<tr>
<td>Euskalduna – type 1</td>
<td>1004</td>
<td>Outdoor area</td>
</tr>
<tr>
<td>Euskalduna – type 2</td>
<td>2230</td>
<td>Outdoor area</td>
</tr>
<tr>
<td>High holding power anchor</td>
<td>6000</td>
<td>Outdoor area</td>
</tr>
<tr>
<td>Ancient anchor (XVII century)</td>
<td>300</td>
<td>Indoor area</td>
</tr>
<tr>
<td>Ancient anchor (XVIII century)</td>
<td>300</td>
<td>Indoor area</td>
</tr>
<tr>
<td>Complete anchoring system</td>
<td></td>
<td>Indoor area</td>
</tr>
<tr>
<td>Different anchor gears (chains, shackles, kenter)</td>
<td></td>
<td>Indoor area</td>
</tr>
</tbody>
</table>

Figure 1 shows a plan of the indoor exposition area and the location of the above mentioned columns, where some anchors have been placed.

Eight pictures containing 209 scale model of types of anchors, showing 4000 years of anchors history have been bought and are shown in the walls.
Figure 1: Indoor area for anchor exhibition.

To ensure the technical quality of the project content, a wide bibliographic and internet search has been carried out, trying to get information on technical aspects, previous related initiatives, etc. This information will be used to prepare the technical content of the exhibition, as well as to propose future research works, to be undertaken by the Nautical School students and professors.

A visit to relevant Maritime Museums at international level has been undertaken, to get information on technical and museographycal aspects. Besides, technical information and bibliography on how to organise and manage permanent exhibitions and technical museums has been analysed.

Although the Museum is still in a preliminary phase, it is already visited by different social collectives, and mainly scholar visits are being organised.

References

[1] Belcher, M. Organización y diseño de exposiciones – su relación con el museo, ed. Trea, Gijón, Spain, 1994


