

## Scheme to redact the Research Project

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### 1 – Title of Research Project

Boats of Iran: A comparative Study on Iconographic and ethnographical Evidences of the watercraft

### 2 - Scientific-disciplinary sector to which the project refers

Maritime Archaeology

### 3 - Project abstract (max 5000 characters - one page)

Iran, as a land having access to three seas of Caspian, Persian Gulf and Gulf of Oman, has always been an important maritime pathway. In addition to the seas, terrestrial waters such as lakes, marshlands and rivers provide appropriate potentials for navigation. Despite this, archaeology of ships and boats has been widely remised in Iran. The only archaeological evidences been recovered in the region are some bitumen slabs found in Oman, UAE, Kuwait and Qatar -not even in Iran- dating back to Bronze Age which show reed impression on one side and barnacle remains on the other side (Carter 2012: 367; Cleuziou and Tosi 1993: 746-761) which prove they were applied for waterproofing reed-made watercrafts used necessarily in the sea. In spite of archaeological evidences with regard to watercrafts of Iran and Middle East, iconographic evidences are quite rich and surprisingly, show great similarities with living traditional boats. In addition, there are a number of written resources which can complete and support the iconographic evidences. The aim of current study is to reveal the aspects of traditional boat building in Iran through iconographic evidences such as petroglyphs, grafittos, books' illustrations and wall paintings and comparing them to the living boats still used by locals living along the southern coasts of Caspian Sea and Hircanian Forest, Persian Gulf, Gulf of Oman, Shadegan marshes and Hamoon Lagoon.

The questions are as following:

The first question is to recognize the structural (hull shape, existence of the keel, etc.) and technical aspects (propulsion and steering) and building technics (being shell- first or skeleton- first, planking system, etc.) of the traditional living boats within Iran.

The second question is to interpret the available iconographic evidences such as petroglyphs, grafittos, historical books' illustrations, seal impressions and wall paintings which will be discussed in detail later.

The third question is to argue whether or not living boats are comparable with those illustrated in iconographic evidences.

This investigation is based on ethnographic surveys, iconographic evidences and historical written sources as below:

Ethnographic surveys: Ethnographic surveys in southern and northern ports of Iran as well as Shadegan Marshland and Hamoon Lagoon including recording and registering traditional boats and interviewing old mariners and boat builders to figure out the structural (hull shape, existence of the keel, etc.) and technical aspects (propulsion and steering) and building technics (being shell- first or skeleton- first, planking system, etc.) of the boats.

Iconographic evidences: Collecting and interpreting pictorial evidences of boats/ships from Iran including petroglyphs in Dehtal (Bastak), graffitos in Siraf (Boushehr) and old book illustrations such as 18<sup>th</sup> century version of *Adjayeb ol-Makhlukat* by Qazvini and pictures.

Written sources: Collecting written information by voyagers, scholars, militarists, etc. in Persian, Turkish, Arabic, Asian and European Languages (mostly Chinese, French and Italian) such as *Buddhist Monk's Pilgrimage* (Wang 1998) and *Ajaib-al-Hind* by Ramhormozi (1969).

To avoid repetition, methodology and state of the art will be explain later, however, regarding expected results, by the end of the investigation, a data base of three sheets is supposed to be prepared, one includes information on living traditional boats which were studied during this project and two others include information driven from iconographic evidences and written sources. By comparing three of data bases, a vast number of similarities between iconographic and ethnographic evidences is expected to be comprehended.

### 4 - State of the art (max 5000 characters - one page)

Current study is based on MA thesis of the author at the University of Tehran. In namely thesis titled "*Typology and Classification of the Water-Crafts Illustrated on the Proto-Elamite and Elamite (3200 BC- 7<sup>th</sup> century BC) Seals and Seal*

*Impressions with a Focus on Their Functions*” a collection of 22 iconographic evidences found within Iran dating back to the fourth until first millennium B.C. were studied which revealed that depicted watercrafts are comparable with so called *mashhuf*, *zaimeh* and *shashk* traditional canoes. Besides iconographic evidences, living traditional boats in south west of the country (Khuzistan, Boushehr and Hormozgan provinces) were surveyed. Due to lack of time and funding, ethnographic studies were only limited to the south western part of country while some types of boat such as *lutka* in north and *tuten* in south east of Iran were neglected. In current investigation, it is aimed to extend the ethnographic survey to whole country including southern coasts of Caspian Sea and Hircanian Forests in the north as well as northern coasts of Gulf of Oman and Hamoon Lagoon in the southeast in order to gain an overview of the traditional watercrafts of Iran and their building technics. Also, it is necessary to discuss watercrafts of neighboring countries such as southern countries of Persian Gulf and India since some of boats used in Iran are believed to originated from overseas such as *hoori* which comes from India (Blue *et al.* 2017).

As mentioned earlier, so far, investigations on boat building in Iran have rarely been carried out. Nevertheless, some publications in Persian are available (Parsa 2012, Raein 1970), however, they mostly lack precise technical information. It should be mentioned that lanj (Oriental wooden ships and boats) building of Iran is inscribed on *UNESCO Intangible World Heritage*, yet, attempts toward neither recognizing details of this tradition nor conservation of it, by no means, are sufficient. Thus, traditional technics of boat building in Iran could be considered in danger, however, thanks to pictures taken by voyageurs and travelers during 20<sup>th</sup> century such as Aubrey (1918-1919), Villiers (2006), Vasmus and Holzer (Ebrahimzadeh 2016) which provide us with a vast pictorial resource, we can resurrect the details of forgotten watercrafts.

Nonetheless, rather more efforts on studying iconographic evidences have been done. Siraf, for instance, was an important port in northwest of Persian Gulf during late Sassanid and early Islamic era. A graffito of a ship has been discovered there by Whitehouse (2009) which belongs to 10<sup>th</sup>- 11<sup>th</sup> century AD., later, some other graffito on the same platform were found which been mentioned as too ambiguous to interpret (Khakzad *et al.* 2016) which is not true. During my several visits of the site, I realized that in formidable light, numbers of ships and boats appear which are capable of interpretation to a high extend. In addition, there is a huge site of petroglyph in hinterlands of Persian Gulf called Dehtal, county of Bastak. Among the motifs, several depictions of watercrafts have been found too; author has already interpreted one single of them (Kalantar and Safa 2017) but there are lot more to be studied. Dating of Dehtal’s petroglyphs is controversial and the only relative method is to measure their color, the darker motifs are, the older they are.

To summarize, current study is continuation of my MA thesis which was a comparable study between iconographic evidences dated back to 4<sup>th</sup>- 1<sup>st</sup> millennium B.C. representing watercrafts and living traditional canoe boats in southwest of Iran. In present study, it is aimed to expand ethnographic surveys to southeast and north of Iran, in addition, this investigation tends to collect and interpret more recent iconographic evidences such as those in Siraf and Dehtal. Considering lack of investigation on boat building in Iran and the importance of Iran in maritime pathways, such study is highly demanded.

## 5 - Bibliography (max 5000 characters - one page)

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## 6 - Project description (max 15000 characters - three pages)

### Introduction:

Iran (also known as ancient Persia) is a country with three seas around. Caspian Sea which is actually the greatest lake of the world, is located in north of Iran and south of Russia. Alborz Mountains divided the southern coasts of Caspian Sea from mainland of Iran and in this between, Hircanian Forests is located. Hircanian Forest with its several rivers, cover the northern part of Alborz and the narrow plain between the mountains and the sea. In addition to rivers and the sea, there are several lakes and lagoons in this region. These potentials for canoeing along with the access to good sources of wood, made people able to make dugout canoes, some of these boats still exist. Furthermore, *Lutka*, a flatwater boat is still used there which is believed originated from Russia.

The rest of the country is almost dry. But there are lakes and rivers that gave birth to Iranian civilizations such as Zayanderood river in Esfahan and Armand river in Bakhtiari region. Most of these rivers are originated from Zagros Mountains in west of Iran flowing through the highlands and then across the plains. According to written and ethnographic sources, rafts and inflated skins were used on these rivers.

On the other hand, iconographic evidences, including seal impressions (dated back to 4<sup>th</sup> and 3<sup>rd</sup> millennium BC), graffito (from early Islamic era) and petroglyphs show different types of watercrafts which share aspects and details with working traditional watercrafts in southern provinces such as Khuzistan, Boushehr and Hormozgan.

Also, in Hamoon Lake, in the borders of Iran and Afghanistan, a very unique and special reed-bundled boat named *tuten*, is made which are different from other types of bundled crafts in south west of Asia such as *shashk* (differences include hull shape, building technics, draft, etc.).

In my MA thesis, I investigated some types of small boats (canoes) in southern provinces which are comparable with those depicted on the Elamite seal impressions from 4<sup>th</sup> to 1<sup>st</sup> millennium BC. But there are a lot more of boat types around Iran to be investigated. Iconographic evidences as well, are highly neglected. In my further investigation, I seek studying all the working traditional watercrafts around Iran and look forward to publishing it as a book titled "Boats of Iran".

#### **Aims:**

It is known that Persian Gulf and Oman Sea, as the most western part of so-called Maritime Silk Road, have always played an important role in maritime trade and navigation. Even before Maritime Silk Road, Persian Gulf is believed to be an important path. Despite this, so far, no direct evidence of the vessels moving and carrying goods and passengers has been found except some bitumen slabs found in Oman, UAE, Kuwait and Qatar showing reed impression on one side and barnacle remains on the other side (Carter 2012: 367; Cleuziou and Tosi 1993: 746-761) which prove they were applied for waterproofing watercrafts used in the sea.

However, despite the lack of direct evidences, numerous pictorial evidences can be really helpful which have been widely neglected so far. In addition, although Iranian Lanj (dhow) Building is described in UNESCO's Intangible World Heritages list, no serious effort has been done on studying it. So, the main aim of this study is to recognize the structural and technical aspects of the watercrafts used in northern coasts of Persian Gulf and Oman, mainland of Iran and southern coasts of Caspian Sea according to iconographic evidences which represent watercrafts. Also, comparing them with working boats can reveal the facts that may not be understood from the depictions.

A part from that, it worth to be mentioned that this generation of traditional boats, their owners and builders might be last generation of this tradition and if we don't record them, they will be gone forever and all the secrets of navigation in Iran will be lost with them since not many written sources regarding navigation in Iran is available.

#### **Questions:**

1. The first and foremost question of this research is that what types of watercrafts have been built and used in Iran? This question includes aspects such as: 1- Are these watercrafts indigenous to Iran or applied from overseas such as *hoori* and *lutka*. 2- What are they structural and architectural characteristics? For example, being flat bottomed or curved, having keel or not, the measurements of beam, draft and height, planking system if there is any, etc. 3- What are the propulsion and steering system of the craft? It should be mentioned that priority of current study is small canoe boats since I already documented some of them during my MA thesis, however, it can be extended to 200-400 toned dhow ships as well as small canoes.
2. As the second question, this dissertation intends to collect and interpret iconographic evidences such as graffito in Siraf, petroglyphs of Dehtal, rock curving in Taq-e Bostan, Sassanid illustrated plates and book illustrations which depict watercrafts such as 18<sup>th</sup> century version of *Adjayeb ol- Makhlūqat* by Qazvini or any further evidence may be discovered during the process. The question is that what information and details with regard to watercrafts of Iran can these depictions provide? Although these are unsophisticated and even sometimes, inaccurate and abstract, representations of boats and ships, they can reveal valuable information about watercrafts such as shape of sails or steering tools. Another question is dating of the iconographic evidences, it is already cleared that graffito of Siraf belongs to early Islamic era since they are curved on a wall in an architectural context which dated back to that time. Book illustrations, as well, will not be of trouble, petroglyphs, however, are not easy to date.
3. The third question would be the relation between iconographic evidences and information driven from ethnographic survey on working traditional boats. Do they share any aspect? If yes, does it mean possible continuity of the same tradition?

#### **Methodology:**

The applied method is twofold, maritime ethnography and iconography which demands seventeen months in total. In addition, a study on written sources appears helpful. The steps to be taken are as following:

1. I intend to mention once again that the priority of current dissertation is small canoes, however, dhow- sized watercrafts could be included where is necessary, for example, if a graffito shows bold similarities with a specific dhow type. Northern coasts of Persian Gulf and Sea of Oman as well as southern coasts of Caspian Sea are included in the ethnographic survey. Also, canoes used in inland waters such as Shadegan marshes in Khuzistan, Hamoon lake in Sistan and Anzali lagoon in Gilan are associated with this survey. To document these watercrafts, first of all, a 3D picture using photogrammetry will be provided of each and a drawing of section and plan will be made as well. Subsequently, information such as planking or reed-bundling system, the environment and function of the crafts, propulsion, measures and materials will be recorded in a database. Furthermore, by comparing them to watercrafts of nearby countries, origins of these watercrafts will be discussed. Also, pictures left from 20<sup>th</sup> century's western travelers such as Villier (2006), Aubrey (1916-1918) and Vasmus and Holzer (Ebrahimzadeh 2017) will be of use due to the photos they have taken from watercrafts and fishing communities mostly in south of Iran.

Interview with local mariners and dhow masters is the next step. Questions such as who build the watercrafts (whether local fishers or dhow masters), who fund or own it (an organization or a person), how to use navigation tools such as *komal* etc. only could be answered by the local.

The whole above- mentioned process needs to be done within 5 months as following:

First month: field survey in Shadegan marshes and ports of Abadan and Khoramshahr in Khuzistan as well as ports of Bushehr province such as Siraf, Asaluyeh, Ziyarat and Kangan.

Second month: field survey in Ports and Islands of Hormozgan province including Kong port, Hendourabi, Hormuz and Qeshm islands and Hamoon lagoon and ports of Sistan va Balouchistan including Chabahar port.

Third month: Ports, riverside villages and confined waters of south of Caspian seas which involves three provinces of Golestan, Gilan and Mazandaran.

Fourth month: The origin of canoes such as *balaam* and *huri* and a dhow called *Pakistani/ nakua* is in India. Thus, the fourth month of the field survey will be carried out in Kerala and Goa. University of Kerala and the National Institute of Oceanography will be of help in this part of the survey.

Fifth month: One month is needed for working on the database and completing the drawings and pictures.

2. Iconographic evidences, as mentioned before, are petroglyphs of Dehtal which is a petroglyph site of more than two hectares located in hinterlands of Persian Gulf, north of Hormozgan province in Bastak county. Most of the motifs in Dehtal site, including watercraft representations, have been carved on circle or oval rocks made of limy sandstone with an average diameter of one meter and a height of half meter from the ground level using Petroglyph technique in an abstract style. trade roads connected this site to the internal regions of Iran and shores of Persian Gulf and also the probable role of the commercial caravans in making the figures of Dehtal is considerable (Kalantar and Safa 2017). Although some of the watercraft illustrations are already known, it is aimed in this dissertation to carry out a field survey in order to find and document more of them. All of the discovered depictions during the survey, will be recorded in detail in a database along with their scaled drawings and photographs. Making drawing of depictions on convex rocks and dating the petroglyphs are two challenges in this survey. To make drawing of the depictions on flat rocks, a transparent platform will be used to copy the motif but for convex rocks I would rather use a precise photography from 90-degree angle with a 50 mm lens and artificial lighting from 45-degree angle which makes motifs legible. Subsequently, drawings can be made from the pictures. With regard to dating, it should be mentioned that it is the most concerning matter, comparing motifs with other similar ones to date relatively and colors of the petroglyphs are the two ways that help with dating.

Graffito of Siraf is the other source of iconographic evidences. Siraf, which is situated in northwest of Persian Gulf in today's Boushehr province, used to be a brilliant port during late Sassanid and early Islamic that is believed to be destroyed and abundant due to an earthquake (*Ibid.*). Mentioned graffito have been introduced by Whitehouse (2009) and the Irano- American team (Khakzad *et. al* 2016) that conducted an underwater survey in Siraf, however, motifs of watercrafts in Siraf are more than what they have introduced. To draw the motifs, same technic as Dehtal will be applied. By using a transparent platform, motifs will be copied and transferred to paper sheets, then, each of them will be added to the database. Also, artificial lighting with 45-degree angle is necessary to recognize the motifs since they are not deeply curved and probably for this reason they were missed in previous attempts. Fortunately, as motifs are curved on a wall, no difficulty respecting making drawing turns out. Furthermore, since the graffito are depicted in an architecture belonging to 10-11<sup>th</sup> century AD., dating is not a problem.

Two depictions representing watercrafts are left from Sassanid era (224-651 AD). The first one is a golden royal plate curated at National Museum of Iran with illustrations of canoes around it. The other one is representation of royal

hunting boats carved on the wall of a rock-carved memorial of Sassanian emperors named Taq-e Bostan in Kermanshah around 4th century AD. Same technic as Dehtal and Siraf, using a transparent shield to copy the motifs, will be applied to document the Sassanian objects.

Besides, there are some illustrations representing watercrafts which could help with comparative consideration in this study and deserved to be recorded in the database, for instance, there are two miniatures of two different versions of *Maqamat* by Hourani which show a Perso- Arab ship, one at the National Library of France, Paris (Hourani, 1959) and one at the Library of the Academy of Sciences, Saint Petersburg (Agius, 2008). Even more, 18<sup>th</sup> century version of *Adjayeb ol- Makhluqat* by Qazvini includes some illustrations of different kinds of watercrafts. In addition, historic written sources can also reveals some facts about boat/ship building in Iran, for example, Bozorg-e Ramhormozi (1969), who collected Iranian mariners` stories in 10th century AD., provides technical information as well. Information driven from written sources will be located in a seperated database.

Two months for documenting iconographic evidences, including photography and drawing, is sufficient. Also, one month for collecting information and illustrations from written sources is needed. In total, three months for iconographic study is demanded.

3. The third step is to compare the details of watercrafts depicted in iconographic evidences and aspects of documented boats in ethnographic part of the study to argue the possible similarities between them. Then, the possibility of continuity of certain aspects of boat building technics will be discussed.

This part along with writing and editing of the text of the dissertation takes six months in general. Furthermore, three more months for extra editis, whether by the author or the advising commettee is requested.

#### 7 - Expected results and application effects (max 3000 characters - half page)

By the end of the dissertation, along with it, a dabase with three sheets is supposed to be available, one includes information about living traditional watercrafts and the other ones involves details and interpretations of iconographic evidences representing watercrafts and information mentioned in written sources about ships, boats and their building technics. With no doubt, a number of similarities and mutual aspects will be found between the three databases, however, it is hardly accurate to say that iconographic evidences depic exactly same watercrafts as today`s living traditional ones. Nevertheless, it is safe to aclaim that some details and traditions have remained unchanged or rarely changed and this dissertation is supposed to recognize those aspects.

The final horizon of this study is to be published as a book titled "Boats of Iran". Also, it would be of interest if whole process, specially the field survey and interviews with locals, be recorded and an amateur documentary movie be extracted out of this dissertation, since no one would deny the influence of showing something to pupil rather than making them to read it.

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