

# Shipwreck investigations in the waters of Tyre

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*This article discusses the underwater archaeological works carried out from 2006 until 2010, at a depth of 34 metres, 4.5 km North-West from the city of Tyre. This is a collaborative project between the Academy of Fine Arts of Seville and the Lebanese General Directorate of Antiquities (DGA). The project has permitted the recovery and study of a large quantity of material found at the bottom of the sea. This material represents the cargo of a shipwreck, probably dating between the 6th and the 4th century B.C. The study of this material has permitted the discovery of social, cultural and artistic aspects of this period in the Eastern Mediterranean.*

## Introduction

Many stories are told about a shipwreck located a few kilometres offshore Tyre, Lebanon. “There is a trove of terracotta statues being foraged by local treasure hunters”, they say. The main objective of the project was to investigate the site forensically, in order to collect and record as much data as possible from the shipwreck. Our investigation started in a 10 days period in June 2006 to locate and identify the submerged archaeological zone. The initial goal of the survey was to locate the shipwreck and highlight the major points of the excavation project, and to determine what type of dredging machine would be proper for the nature of the archaeological zone.

Several pot sherds were spotted during the first season, along with scattered fragments of statue bases in the area. The finds were all from the same period. During the 2007 season, investigations continued with a larger crew of Marine Archaeologists<sup>1</sup>, in addition to other colleagues<sup>2</sup> for restoration and the study of pottery. 157 artefacts were recovered from the sea during this season. Most of these artefacts were statues and large fragments of statues, along with pottery contemporary with the period of the statues. Also, several areas were identified as having high potential for locating the hull of the ship.

The investigation of the shipwreck recommenced in 2008, in the hope of casting light on the mystery of the location of the hull of the ship. 205 dives were

conducted on the site, resulting in the recovery of 171 artefacts from the seafloor. During this period, 12 soundings and about 43 diving survey tracks were conducted to cover as much of the study area as possible. The richest area for artefacts proved to be the centre of the study area, which covers approx. 600m x400m.

Myriam Seco Alvarez and Ibrahim Noureddine are leading this project in conjunction with the Lebanese General Directorate of Antiquities (DGA). The aim of the project was firstly to locate and save what is left of the shipwreck. Secondly, to complete the basic survey and excavate the remains of the shipwreck in order to make progress towards an understanding of the seafaring history of this area.



Fig. 1- ffffffff.

## Work methods and results

### 1. Work planning:

Recovering underwater archaeological data through diving and mechanical excavation is limited. However, visual monitoring throughout the excavation is the only alternative so far. Meetings of the diving crew were set every evening to discuss the next day's objectives, based on the present status of the information, as well as sea conditions. The divers split in teams during the meeting, depending on each diver's specialty and ability. Both surface and bottom currents were very dominant in the June-July period, therefore dredging machines were used minimally and only when the weather permitted.

The currents were naturally running towards the North, therefore, for several days, drift dives were conducted from the South, outside the parameter of the study area, to the Northern limit (Fig.1). This type of drift diving was made repeatedly in parallel lines, in order to cover the whole area around the centre of the scattered material, GPS points were taken at the beginning, and at the end, of each dive to be added later on to the digital map (Fig.2). Weather conditions in November and December allowed us to use the dredging machines more often, for soundings in areas rich in scattered artefacts. These soundings were of 1x1m, and reached a depth between 50 cm

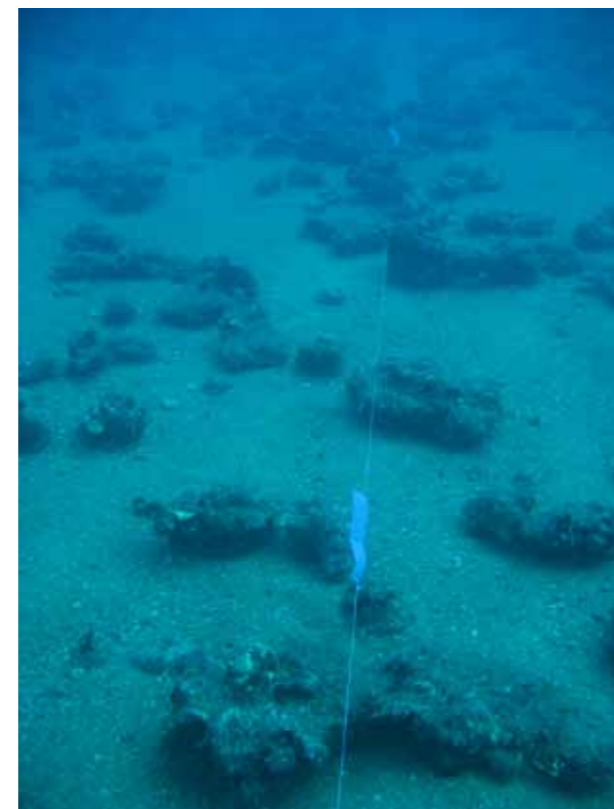


Fig. 2- ffffffff.

to 80 cm (Fig.3). The thickness of the sediments on the sea floor was more than expected. They are divided into 2 different layers, the top layer is about 50 cm thick, and consists of large sand grain particles called "Zivziv" locally. This is followed by another



Fig. 3- ffffffff.

layer, also composed of sand, but more compressed and compact. The lower layer contains more shell fragments.

### 2. Topographical/nautivcal charting

GPS, compasses, measuring tapes and floats were used to create a grid superimposing the general map of the water of Tyre. Digital mapping of the scattered material from the shipwreck helped at first in determining the size and the origin of the ship. The areas of archaeological interest were recorded using a combined method of drawing, and digital photography. The objects that were found during the project were recorded, through photography, technical drawing as well as artistic drawing. GPS was used throughout the work, to record every reference point and diving transact, so that it would be possible to record all concentration zones of artefacts, in order to add them to the digital map (Fig.4). A FileMaker database program was created to include all information related to artefacts such as: measurements, state of preservation, and graphical information.

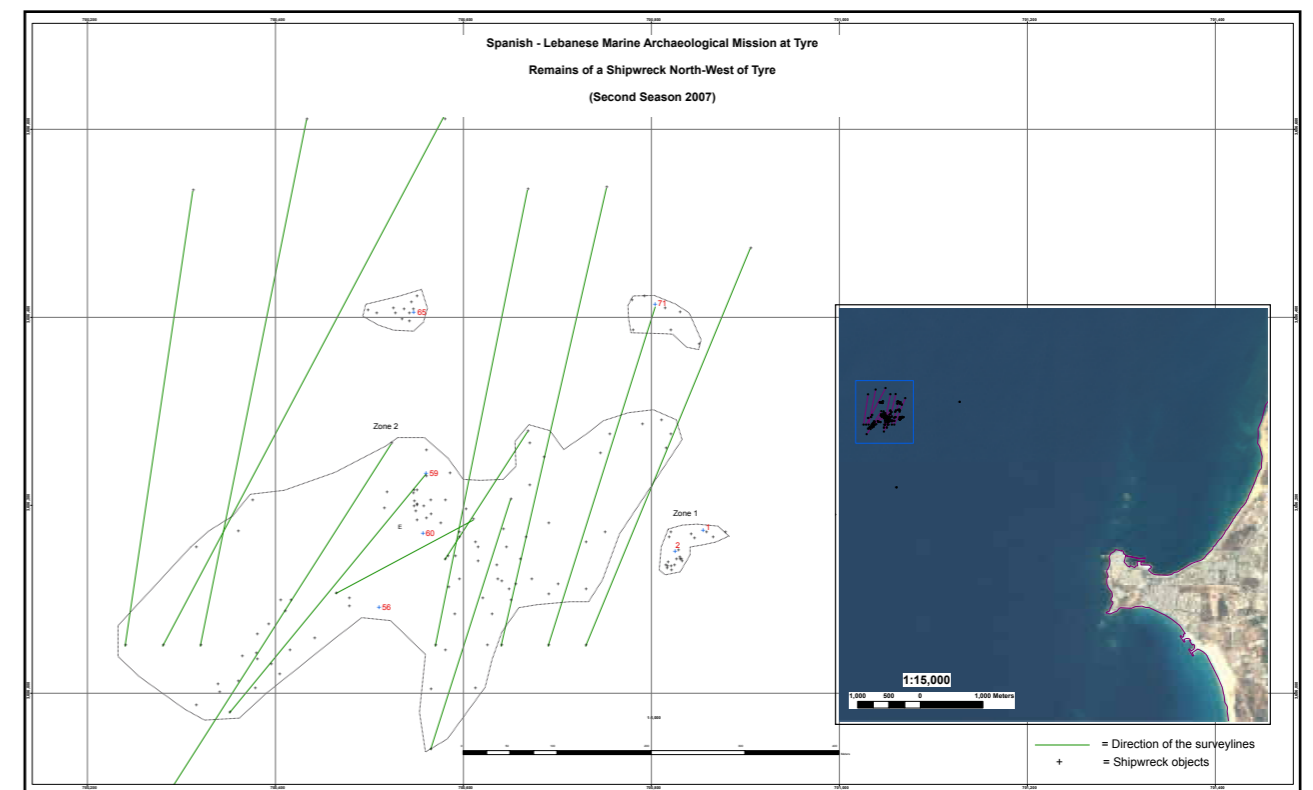


Fig. 4- jiiiiiiiiij

### 3. Conservation works:

The main purpose of conservation is to stabilize the pottery. The process of conservation began as soon as the artefacts were recovered from sea. After recovery, the artefacts were kept wet at all times until reaching the lab, and were then treated in the following manner: Concretions of insoluble salts such as carbonates, sulphates etc., were cleaned in two different ways: chemical cleaning with chemical products, and mechanical cleaning using dental tools and cutters. Desalination or the elimination of soluble salts from the pottery was achieved by bathing the objects several times in tap water and then distilled water. A biocide was added to the water to control biological growth of marine organisms and microorganisms, (Fig.5). After desalination, the objects were introduced to a distilled water bath and finally bathed in alcohol before letting them dry completely (Fig.6). The final step is consolidation, which was performed by applying ethyl silicate to some objects, and by the application of Paraloid with a brush in others. The objects were



Fig. 5- ffffffff.



Fig. 6- ffffffff.

then carefully covered with plastic bubble sheets, and placed in hard plastic containers. They were then transferred to the DGA office in Tyre.

### Excavation area

The entire investigation area was divided into two zones containing all of the scattered material of the shipwreck. The area is around 600 metres East/West X 400m North/South (Fig.4).

#### Zone 1

This zone is located on the eastern section of the study area. It contains two major points: point 1- where the initial work commenced, containing numerous finds. Metal rods were put in place around the zone to demarcate parameters and for use as reference points. Point 2 is also rich in artefacts, was demarcated in the same manner.

#### Zone 2

This zone covers the western and southern portions of the study area. It was divided into 3 different points, where many pot sherds and statue fragments parts were found.

All artefacts were recovered from both zones 1and 2, after recording all necessary information whilst still lying on the sea floor (Fig.7)



Fig. 7- ffffffff.

The investigation of the shipwreck of Tyre has led to several conclusions. Firstly, the sea floor is a mixture of sediments and rocks. The uppermost surface of the seabed may explain what happened in antiquity when the ship sank. Underwater rock formations have created a series of molar along with coarse sands on the sea floor. If no major changes have occurred since the sinking of the ship, this means the possibility of finding the hull of the ship is low. The artefacts of the shipwreck are spread in an area of approx. 600 metres, perhaps due to the strong currents still experienced today. When the ship sank, it was probably on a rough sea with strong currents. Since wooden ships sink slowly, these currents would have caused the artefacts to spread around the area while the ship was sinking.

### Equipment and diving

All the diving equipment used in this investigation was Nitrox friendly increasing the bottom time for the crew. Thus, divers gained around 11 more minutes of work, is almost double the time when the dive is one air. A 9 meters boat with 2 speed engines and flat floor with seats was used during the second season, making divers comfortably going down to the water (Fig.8), while a bigger boat was used during the third season (Fig.9).

### Finds

A total number of 328 artefacts were recovered from the sea. Most of them are large fragments of terracotta statues of different sizes, one of which has the Phoenician inscription: "Eshmoun Yeten", a local name perhaps for the person who made the statue, or the person who ordered the statue (Fig.10). 12 test pits were excavated, mainly in the areas with a high concentration of artefacts. Included among these artefacts are 2 small complete figurines, which were found in test pits approx. 60 cm beneath the sediments (Fig.11). Pottery amphora sherds were found. These

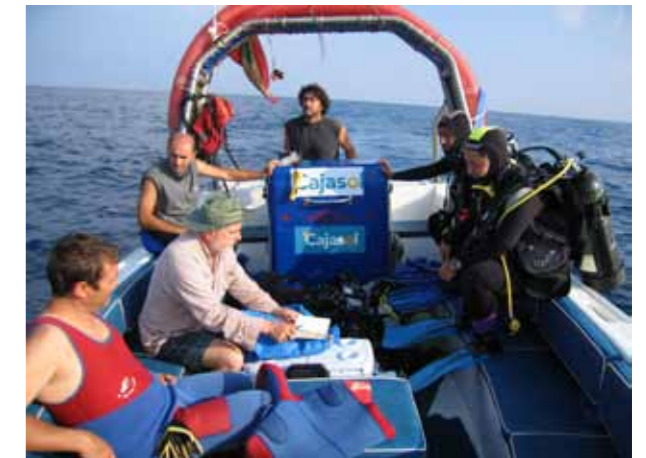


Fig. 8- ffffffff.

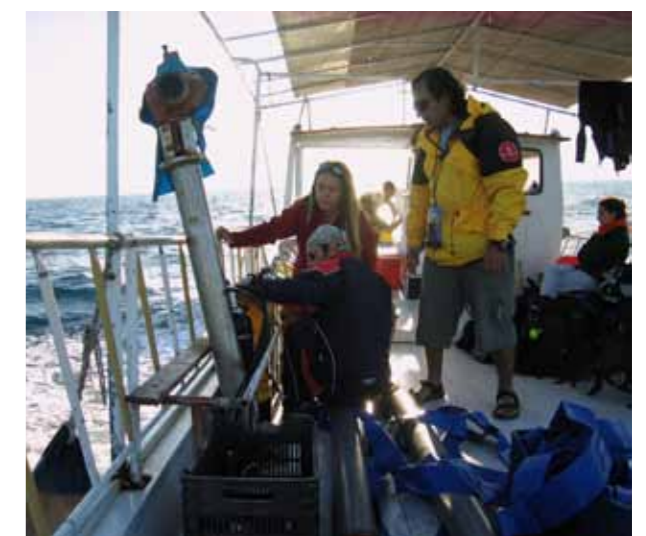


Fig. 9- ffffffff.



Fig. 10- ffffffff.

are “carinated shoulder shape” amphorae, hinting to the 4<sup>th</sup> century BC. The artefacts are all contemporary and probably belong to the same shipwreck.

Most of the artefacts collected from the sea floor within the study area are fragments of terracotta



Fig. 11- ffffffff.

statues. However, complete statues were also found under the first layer in the test pits. Consequently, the possibility of finding more complete forms as well as vessel fragments is likely.

The majority of the statues recovered represent the lower part and bases of statues. Several kinds of statue bases were found: rectangular, square and circular, in addition to a double based combination.

Most of the statues are of female fertility goddess; representing a pregnant female with breasts showing and, in some examples, breastfeeding. The statues are of poor quality terracotta, and are therefore fragile.

During the first millennium B.C. Tyre was still one of the most important commercial cities on the Mediterranean<sup>3</sup>. A similar ship, carrying a cargo of Phoenicio-Punic terracotta figurines, was found some 30 kilometres south of Tyre, at “Shave Ziyyon”. This site was excavated and published in 1973 by E. Linder<sup>4</sup>. Artefacts were also found scattered over quite a large area (one kilometre by three hundred metres). A group of 250 hollow terracotta figurines were classified according to size into 5 different groups: 13, 16, 22, 30 and 40 cm. They are female figures standing on a plinth, wearing either a chitin or peplums; the right arm lifted in a gesture of benediction, whilst the left is held bent against the breast<sup>5</sup>.

Many of the terracotta figurines mentioned above date back to the fifth century B.C. Many resemble those found at the Tyre shipwreck. This raises questions on the shipwreck, with regard to size, destination, and the purpose of the ship's journey beyond its commercial aspect. Culican<sup>6</sup> believed that quite a number of the figurines had been recovered from the sea near Tyre (probably our site), suggesting that they are either part of the same cargo, and drifted from the supposed shipwreck mentioned above, or they are two sets of votive statues purposefully deposited in the sea, perhaps to secure protection from reefs.

Parallels in style to the Tyre shipwreck figurines were found in some draped standing female figurines from the archaic period of Corinth. These statues dated from the 5<sup>th</sup> century B.C, and probably represent youthful votives. These statues were exhibited in shrines or sanctuaries, like those of Demeter and Kore<sup>7</sup>.

Some female figurines from the area of Anatolia classified by “Croissant” resemble various figurines found at the Tyre shipwreck. These figurines are from

the area of Aeolis in Asia Minor, and date from the 6<sup>th</sup> Century B.C. to the 5<sup>th</sup> Century B.C<sup>8</sup>. The terracotta statuettes from Failaka island in Kuwait, representing oriental old style mixed with the Greek new fashion, are also being considered. These female-necked figurines date from the 3<sup>rd</sup> Century to the 2<sup>nd</sup> Century B.C. However, perpetuation of the old religions continued during the Hellenistic period<sup>9</sup>.

Similarities to the Tyre shipwreck figurines are also found in Kharayeb “South Lebanon”. Two models, classified as mother goddesses, resembling the Tyre statues are included in “*Les terres cuites de Kharayeb*” (plate II, no: 4 and 5)<sup>10</sup>.

Statue number 4 represents a seated woman with head and shoulders covered by a veil, breastfeeding a child. This hollow statue is 15 cm high, stands on a rectangular base, and has remains of red pigment. Statue number 5 is also approx. 15cm high. The statue represents a standing naked woman, with hair covered by a veil, and left hand on her chest, carrying a child. The figure stands on a high rectangular base.

It is very difficult to date mother goddesses. They are characterized by rough workmanship with very little Hellenistic influence. In contrast to the great archaic period they are a demonstration of the perpetuation of Canaanite traditions in popular workshops. Hence, the

figures can be dated to the beginning of the Hellenistic period. However, there were some common Egyptian influences on eastern Mediterranean art, in particular on Phoenician art. For example, some of the figures from Kharayeb represent Isis and Horus, who had a great acceptance in Phoenician societies. This is demonstrated by the assimilated goddess of fertility, motherhood and pregnancy, Isis-Astarte, who had the same aspects at Byblos and Tyre as the ancient Egyptian goddess Isis.

## Finds

328 artefacts were recovered from the sea. Most of these are large fragments of terracotta statues of different sizes. The pottery amphora sherds found are of the “carinated shoulder shape”, common between the 4<sup>th</sup> and the 6<sup>th</sup> century B.C. It is possible that these artefacts all belong to the same shipwreck. (Fig.12)

No artefacts were found to the West of zone 2. The collected material was concentrated between zones 1 and 2, covering an area of approx. 600 metres. In order to map and gather more information on the material, 14 different survey routes were created, by making underwater transects in a given direction flowing with



Fig. 12- ffffffff.

the current. The limit of the scattered material ends to the West of zone 2, where it stops suddenly. However, it continues towards the East (**Fig.4**).

### There are three categories of statues

- Female fertility goddess,
- Warrior like male statues, and
- Male priest statues or male figures in a position of adoration.

The majority of the artefacts are bases and the lower parts of statues. Several types of statue bases were found: rectangular, square, circular and, on occasion, a combination of two types. The statues vary in size between 12 cm, as represented by find no. 539, and more than one metre high, as represented by find no. 564 (**Fig.13**).

a) Most of the female statues are pregnant fertility goddesses, with breasts showing, sometimes breastfeeding at the same time. Similar figures, which include a Tanit symbol, were found next to Shave-Ziyyon. Nunn<sup>11</sup> classifies similar statues to those we found as Phoenician group type 35A, which are defined as female statues on a base, with right hand up, and with the left holding the breast or holding a baby.



Fig.13- ffffffff.

Most of the females depicted are pregnant, and their hair is tied with a ribbon. The height ranges between 30 and 37 cm, or between 13 and 16 cm<sup>12</sup>. This type of figurine has also been found in a Palestinian favissa in Tel Sippor. The heterogeneous character of the terracotta and statuettes of Tel Sippor, like that of many similar assemblages, indicates that the terracotta objects and statuettes were originally votive offerings, presented to the deity, or deities, worshipped in the sanctuary, and later discarded. They were usually placed in sanctuaries, but could also be placed in houses, or in tombs as offerings for the dead<sup>13</sup>.

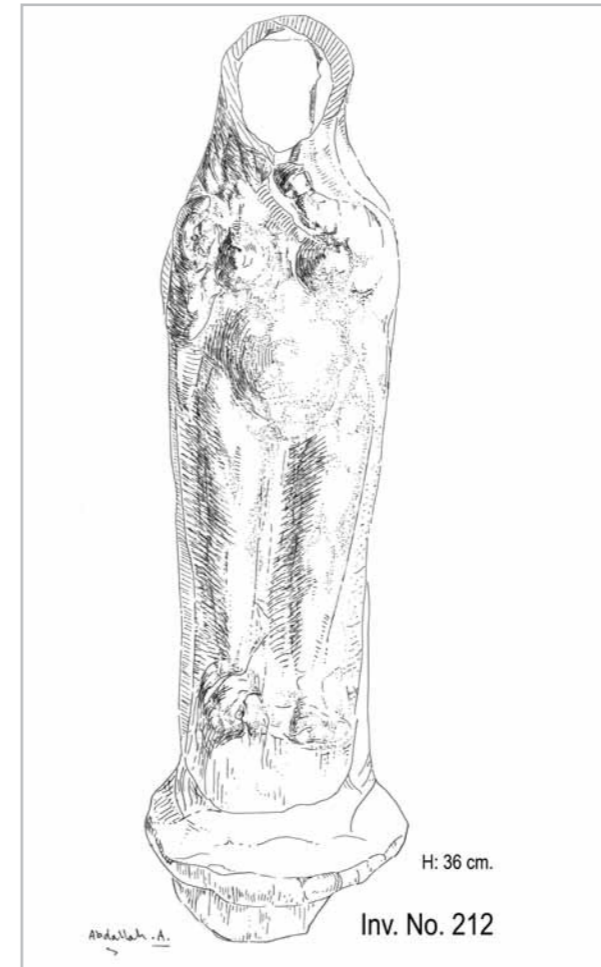
An example of a female fertility goddess from the Tyre shipwreck is one found in zone 1. This is a complete statue of a pregnant female, with the right palm open to the front, and the left hand on the chin. The statue is standing on a square base that ends in a circular shape. The breast is showing and only the face is missing out of this statue (**Pl. 1**).

The statues we found were of poor quality terracotta. They are in fragile condition as they had been immersed in salty seawater at 35 meters of depth for such a long time. Only 3 statue fragments with heads were found in zone 2, which are those given inventory numbers: 197, 192, and 303. Features have been obscured by a thick layer of concretion deposited on the surface of these figurines. In other case, the features have been eroded away.

Hollow terracotta figurines originated in Rhodos. They appeared during the mid 6<sup>th</sup> century B.C. and were distributed in the 5<sup>th</sup>-4<sup>th</sup> centuries B.C. at several Mediterranean regions such as: western Asia Minor, Greece, Sicily, Italy, Cyprus and the eastern Mediterranean<sup>14</sup>.

The statues discovered at Makmish and Tel-Sippor on the Palestinian coast are similar to those found in Shave-Ziyyon. This type has also been found in a mainland context, i.e., the Hellenistic favissa at Kharayeb near Saida, Lebanon<sup>15</sup>.

Some of the statues found in zone 2 at the Tyre shipwreck (**Fig.14**) are similar to 5 statues held in a private collection<sup>16</sup>. They have the same type of rectangular base, and all of them represent pregnant females holding a (baby?) with the left arm. These statues measure approx. 35 cm. Among all the statues recovered from the sea, one statue head resembles those in the private collection (**Fig.15**).



Pl. 1- ffffffff.

There are several standing statues with offering bowls placed on the feet of the statue (probably for oil or incense) (**Fig.16**) among the artefacts found at the Tyre shipwreck. Gubel<sup>17</sup> mentions one statue found at Tyre, now part of the "Chalabi" collection also with an offering bowl.

At Tell Sippor, there is a collection of standing female statues, catalogued as number 2<sup>18</sup>, very similar to one from Tyre. The Tyre statue represents a female holding a child with the left arm. Her right hand is probably on the belly. The lower part of the statue is broken (**Fig.17**).

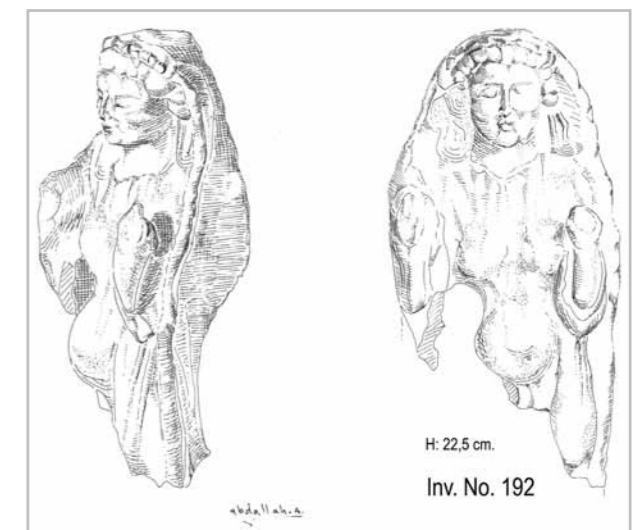
A variety of forms and styles are present in the Tell Makmish collection. The great majority of the figurines are of hollow terracotta. The figurines are 18 cm. in

height, and were made in moulds. The most peculiar and popular types of this class represent seated men of patriarchal appearance fondling their long beards, and women in an advanced stage of pregnancy. Other common types, in keeping with Canaanite tradition, represent women nursing a child<sup>19</sup>. This type is also very similar to one from the Tyre shipwreck (**Pl. 2**).

b) This type of statue represents male warrior figures with strong muscles, giving the impression that these are representations of fighters<sup>20</sup>. From a stylistic point of view, these statues have a strong Egyptian influence. However, the art of terracotta modelling was less exposed to Egyptian influence than luxury crafts at Tyre. In fact, the production of these objects seems to have been less exposed to foreign influence than other crafts practiced in town<sup>21</sup>.

Examples of warrior statues from the Tyre shipwreck:

Find No. 106 is a lower part of a male statue wearing a garment reaching to the knee. The figure stands on what is left of a rectangular base. The feet are broken, however, it is possible to see that the left foot is placed in front. The feet of the statue are hollow. The maximum preserved height of the figure is 21cm. Find No. 122 is a lower part of a male statue wearing a garment reaching to the knee, standing on a broken rectangular base. The feet are broken. The statue is hollow. The maximum preserved height of the figure is 47 cm.



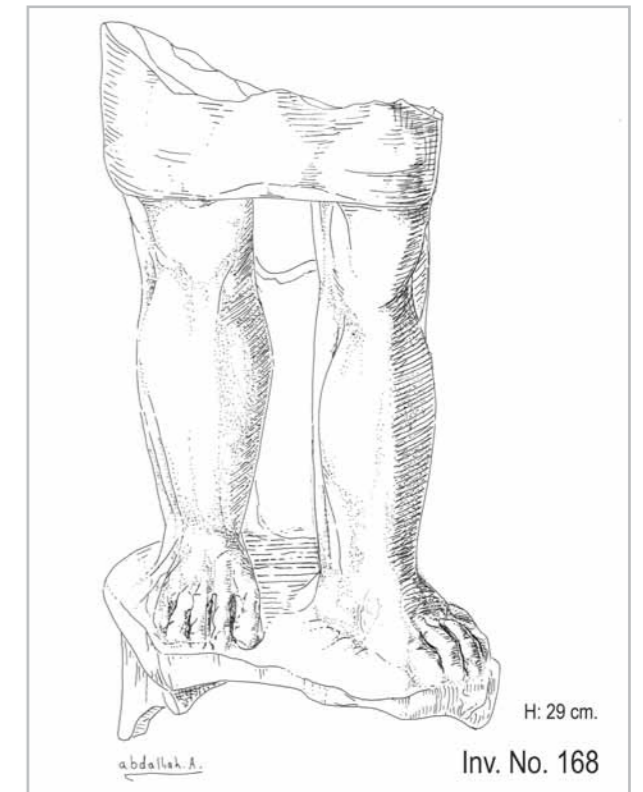
Pl. 2- ffffffff.



Fig. 14- ffffffff.



Fig. 17- ffffffff.



Pl. 3- ffffffff.



Fig. 15- ffffffff.



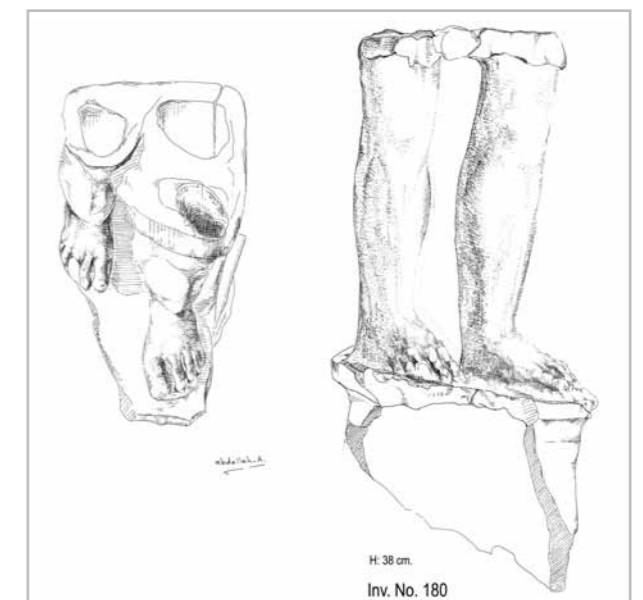
Fig. 16- ffffffff.

Find No. 168 is also a lower part of a male statue wearing a garment reaching to the knee, standing on a broken rectangular base. The feet are complete, and the left foot is in front. The statue is hollow (PI. 3).

Find No. 180 is a lower part of a male statue wearing a garment reaching to the knee, standing on a broken rectangular base. The feet are complete, and the left foot is in front. The statue is hollow. The maximum preserved height of the figure is 38 cm (PI. 4).

c) Another type of male statues of figures appear to represent priests or male figures in a position of adoration. Finds Nos. 124, 137 and 164 are representative of this type. Number 124 has a maximum height of 28 cm. This is a male statue on a cylindrical base with a long cloth. The left arm is on the chest holding an unknown object. The head and shoulder are missing (PI. 5).

Number 164 has a maximum preserved height of 28 cm. This is a headless statue of a male figure



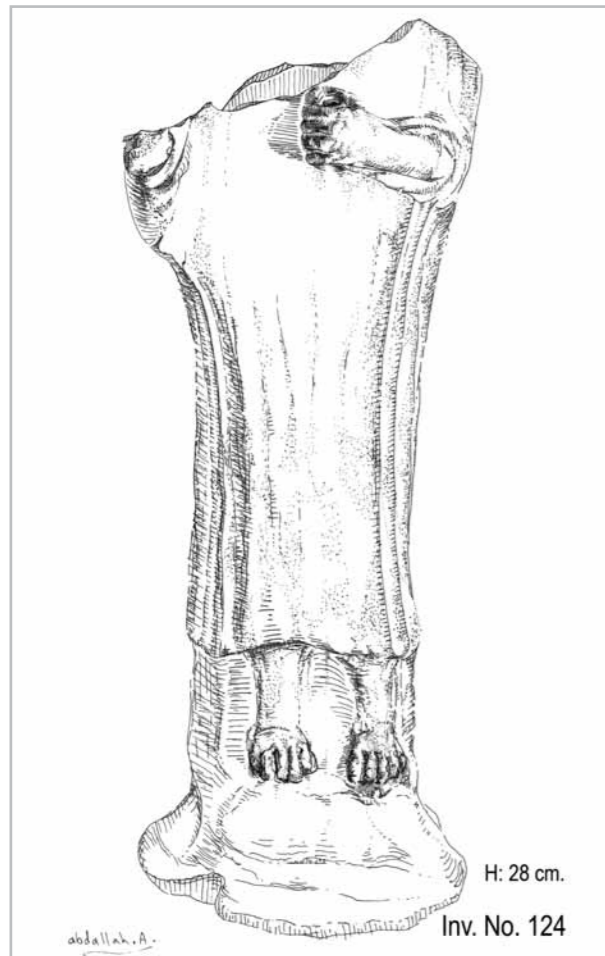
Pl. 4- ffffffff.

wearing a short garment. The left arm is missing, and the right palm is open to the front. The lower part of the legs and feet are also missing, as is the base. The statue is hollow. Parallels to these statues may be those held in the collection of the Szepmuveszeti Museum at Budapest. The figures depict the same gestures, in particular, the position of the hands. The statues of the Sepmuvesiti Museum are dated to the 5<sup>th</sup> Century B.C, which corresponds to the same period as the statues found at Tyre.

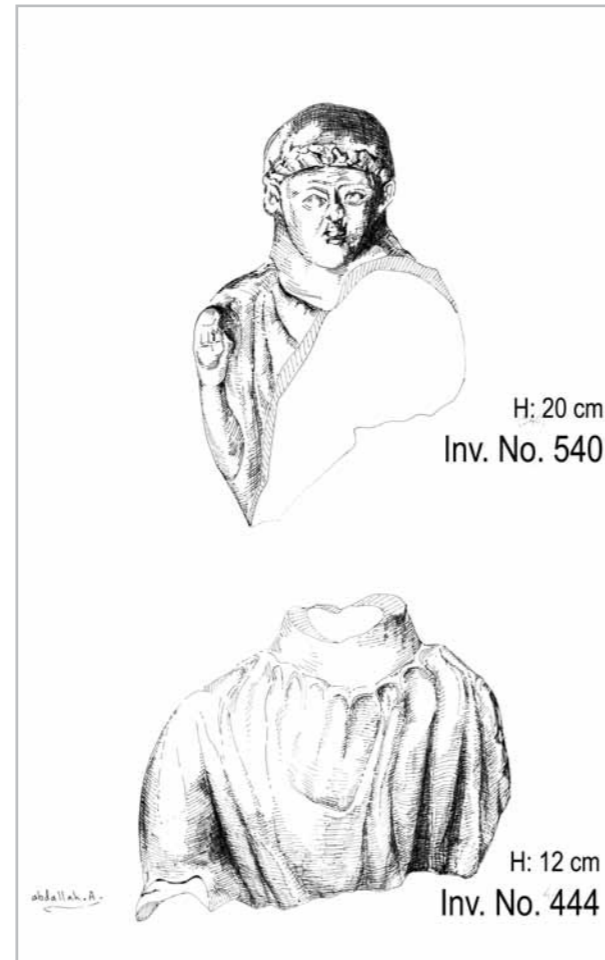
Statue number 137 is a portion of the body of a male representation. Only the garment and part of both legs remains. The maximum preserved height of the figure is 22 cm. This is therefore a part of a larger statue than the two statues mentioned above.

A very fine looking head of a male statue was found along with a part of the body. The maximum

preserved height of the statue fragment is 20 cm. The right part of the chest and the right hand are visible. The right palm is raised and opens to the front. Traces of a toga appear on right shoulder. The figure wears a diadem on the head. The rest of the statue is missing. Another torso of a male statue wears an attractive decoration on the neck. Both shoulders are visible (Pl. 6).



Pl. 5- ffffffff



Pl. 6- ffffffff

## Conclusion

We have collected a large amount of artefacts varying in size and shape during our investigations. Three main types have been identified: statues of pregnant women breastfeeding a child, male figures with a more archaic aspect – probably warriors due to their stance and the pronounced musculature of their legs, and lastly, male figures in a position of adoration. However, it should be noted that a great variety of garments exists within the three types. All the statues were made in moulds and set on to bases, which could be square, rectangular, circular, or a combination of two shapes.

All the material was found scattered on the sea floor over a very extensive area. This was probably due to the strong currents in this area, which scattered all of the cargo of the ship which sank in this place. We have not found vestiges of the wreck itself, nor the remains of wood, the keel or any metal objects. All the objects found are statues, or fragments of statues and fragments of amphorae. The amphorae have served to date the material to a period between the 6<sup>th</sup> and the 4<sup>th</sup> century B.C., as previously mentioned. During this period, these statues were very common in the Eastern Mediterranean for funerary or religious use in sanctuaries, private houses and also for decorative use.

## Acknowledgments

We would like to express our gratitude to the Lebanese General Directorate of Antiquities (DGA) for entrusting us with the investigations of the submerged site at Tyre. Thanks are also due to the Cajasol Foundation for funding the first three seasons, and also to the IAPH of the Junta de Andalucía for conducting conservation works during the 2008 mission. We would also like to thank the Spanish Ministry of Culture and Junta de Andalucía for sponsoring the investigations carried out in 2009 and 2010. Finally, we would like to thank all our collaborators for making this work possible.

## Notes

**1-** Participating Marine Archaeologists were: Myriam Seco, Ibrahim Nouredine and José Antonio Galdona (2006-2010), Manu Izaguirre, Albet Menedez (2007-2008), Robin Betah. (2008-2010) and Zeina Haddad (2007).

**2-** Constanza Rodriguez, restorer (2008), Abdallah Alaeldine pottery analysis (2007-2008), Elena Mora, restorer (2010) and Ahmed Amin, Photographer (2010).

**3-** G. Bunnens, "Tyr et la mer", OLA 15, Leuven 1983, p. 7.

**4-** E. Linder, "A Cargo of Phoenicio-Punic Figurines" *Archaeology* 26, 3 (July 1973), pp. 182-187.

**5-** Linder, op. cit., fig. in p. 184.

**6-** W. Culican, "A Votive Model From The Sea", *Opera Selecta From Tyre to Tartessos, Studies in Mediterranean Archaeology* 40, Göteborg 1986, p. 437.

**7-** G. Merker, *The Sanctuary of Demeter and Kore, Terracotta figurines of the Classical, Hellenistic, and Roman Periods*, New Jersey 2000, pp. 24-29 and plates 1 and 2. Types C7, C8, C19 and C22 present some similarities with our figurines.

**8-** F. Croissant, *Les protomés feminine's archaïques, recherches sur les representations du visage dans la plastique grecque de 550 a 480 Av. J.-C.*, Paris 1983, pp. 141-154 and plates 49 and 50.

**9-** E. Mathiesen, *The Terracotta Figurines*, Copenhagen 1982, pp. 15-21 and 70-77.

**10-** H. Chéhab, *Les terres cuites de Kharayeb*, Paris 1954, plate II.

**11-** A. Nunn, *Der figürliche Motivschatz Phöniziens, Syriens und Transjordaniens vom 6. bis zum 4. Jahrhundert v. Chr.*, OBO 18, Göttingen, pp. 48 and Pl. 41.

**12-** Nunn, op. cit., pl. 41 (143).

**13-** O. Negbi, "A Deposit of Terracottas and Statuettes from Tel Sippor", *Atiqot VII*, Jerusalem 1963, p. 4.

**14-** See "Dictionnaire de la Civilisation Phénicienne", fig. 105. A group of femal statues from a private collection, coming from a shipwreck nesr Tyre, dated to the V Centure B.C.

**15-** M. Chéhab, "Les terrescuites du Liban á l'époque héllenistique", *Huitième Congrès Internationale d'Archéologie Classique*, Paris 1963, p. 173, pl. 126.

**16-** See "Dictionnaire de la Civilisation Phénicienne et Punique", fig. 105. A group of female statues from a private collection, coming from a shipwreck near Tyre, dated to the V Century B.C.

**17-** E. Gubel, "Art in Tyre during the First and Second Iron Age. A Preliminary Survey", *Studia Phoenicia (Orientalia Lovaniensia Analecta) OLA 15*, Leuven 1983, p. 36 and fig. 10 in p. 50.

**18-** O. Negbi, "A Deposit of Terracottas and Statuettes from Tel Sippor", *Atiqot VII*, Jerusalem 1963, p. 11 and pl. I

**19-** N. Avigad, "Excavations at Makmish, 1958, Preliminary Report", *IEJ 10*, (1960), p. 93 and pl. 10C.

**20-** V. Karageorghis, *The Coroplastic Art of Ancient Cyprus, III The Cypro-Archaic Period Large and Medium size Sculpture*, Nicosia 1993, pp. 1-52 and plates I and XIX.

**21-** E. Gubel, "Art in Tyre", OLA 15, p. 31.

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