THE KINNERET BOAT: THE EXCAVATION REPORT

Two years ago at Delphi I described the discovery, excavation and removal of the Kinneret Boat from its site to the conservation facillities constructed for it at the Beit Yigal Allon Museum next to Kibbutz Ginosar. Since its discovery in 1986, the boat has been the subject of detailed study by a number of experts and scholars (Fig. 1). These studies help us to understand the boat, its construction, the milieu in which it lived its work life as well as its significance vis-à-vis activities that took place around the Kinneret (the Hebrew name of the freshwater inland lake commonly known as the Sea of Galilee) during the first century AD.

The excavation report is now in press and will appear as volume XIX of Atiqot, the English language journal of the Israel Antiquities Authority. This should be published early in 1990.

The Kinneret Boat has turned out to be a treasure trove of information about a time and a place that literally changed history. It has acted as a catalyst, requiring us to go back and reexamine the existent evidence concerning seafaring in antiquity on the lake. I would like to summarize here a few of the main archaeological and historical conclusions that wil appear in the report. As Professor Steffy discussed his contribution at Delphi in 1987 I will refer to his work only in passing here.

Date

One of the most difficult questions raised by the boat is its dating. This is based on three considerations: construction techniques, ^{14}C dating and pottery. All three of these have their limitations.

Comparing the hull to Mediterranean forms of ship construction, Steffy suggests that the vessel was built between the first century BC and the second century AD.[1] However, he is quick to emphasize that building traditions may have lingered longer on the Kinneret than on the more cosmopolitan Mediterranean coast. Furthermore, Steffy notes that dating a hull by contruction techniques alone is normally unreliable; for the Kinneret Boat it is impractical due to the lack of comparative material there.

Ten samples of wood from the boat were submitted for ^{14}C dating by Dr. Israel Carmi at the Weizmann Institute.[2] These give an average age of 40 BC±80.

The lamp and cooking pot found during the prode excavation can be dated from the mid-first century BC to the mid-second century AD. However, by comparing datable sherds found in the excavation itself to nearby stratified assemblages, Dr. David Adan-Bayewitz concludes that all the ancient pottery found with the boat is typical of the period from the latter first century BC to the decades following the mid first century AD, or about the year AD 70[3]. He emphasizes that none of the pottery sherds belong to forms beginning after the late first century AD.

The boat carried no cargo. The pottery was found in unstratified contexts in and around the boat and, therefore, cannot be directly linked to it. However, the pottery is a chronological indication of a period of human activity in the immediate vicinity of the boat.

The coins found during the excavation, unfortunately, are of no help at all in dating the boat. None of the coins were found inside the hull, and all of the coins came from unstratified contexts. Of the 57 coins found during the excavation and studied by Mr. Haim Gitler, 43 were identifiable[4]. These range in date from the third century BC to the 19th century AD.

The concluding date, based on the ceramic evidence, may be linked to historical events in the area. The boat was found a scant kilometer from the ancient site of Migdal. Josephus' description of the land and sea battle between the Jews and the Romans at Migdal in AD 67, and its aftermath, suggests that the city was depopulated at that time. He mentions a total of 44,300 Jews from Migdal who were either killed or sold into slavery during and after that battle[5]. Even if Josephus' numbers are exaggerated, there can be no doubt that, if the city of Migdal did not cease to exist entirely for a time, at the very least, its population was considerably depleted.

All this must have had an affect on human activity in the area of the excavation site for years after the battle. The boat was found in an area of boat-building activity;[6] it is probable that work ceased at the site for a period following the battle. Therefore, it seems highly likely that the boat was deposited at the site, and its reusable parts removed, prior to the battle of Migdal.

Iconography

One of the most memorable moments for me during the excavation took place during Steffy's first day at the site. After he had studied the boat for awhile he showed me a rough outline of the boat's sheer plan as he perceived it —with a pointed prow and a high recurving stern— not unlike his preliminary sheer plan (Fig. 2). I asked him how many rowers in his opinion, would have rowed a boat this size. Probably four, he replied.

No sooner had he returned to his recording than we had a visit by Fathers Stanislau Lofreda and Virgilio Corbo, two Franciscan priests who had excavated at Capernaum and at Midgal. As I showed them around the excavation, they told me about a first century AD mosaic of a boat that they had found ten years before at Migdal. Corbo drew a picture of the mosaic in my notebook. It had a pointed bow and recurving stern and looked exactly like Steffy's drawing. When I showed the drawing to him, Steffy was sure that I was pulling his leg. The Migdal boat that Corbo had drawn had three oars to a side. This suggested that it was rowed by six oarsmen and represented a vessel of a class larger than ours. When later I examined the mosaic in detail, however, I found that each of the two forward oares were represented as a single line of red mosaic stones (Fig. 3). But the sternmost oar widened at the bottom - it was a quarter rudder. This meant that the boat in the mosaic must have had four rowers, as Steffy had predicted for our boat, and a helmsman— a minimum crew of five.

Literary sources

The evidence of the Kinneret boat and the Migdal mosaic concerning crew sizes is supported by the literary evidence in both Josephus and the Gospels(7). Josephus describes how, when he was magistrate of the Galilee, he prepared a sham war fleet of boats at Migdal that he sent to Tiberias to frighten the inhabitants into following him. Lacking his army he placed skeleton crews in each of he boats. Josephus writes that he:[8]

...collected all the boats that he could find on the lake —some two hundred and thirty, with no more than four sailors in each— and with this fleet made full speed for Tiberias.

Later the boats were loaded with the men of Tiberias who had been taken as hostages. Josephus notes:[9]

As the boats were successively filled he ordered the captains to make with all speed to Tarichaeae [Migdal].

From this we may conclude:

4 Sailors + 1 Helmsman/Captain = 5 man crew

Similarly, in the Gospels we read:[10]

And going on a little farther, he (Jesus) saw James the son of Zebedee and John his brother, who were in their boat mending the nets. And immediately he called them; and they left their father Zebedee in the boat with the hired servants, and followed him.

Thus, the boat of the Zebedee family was crewed by five or more men:

1 [Zebedee] + [James] + [John] + (2 + ?) ['hired men] = 5 (+ ?) man crew

Similarly, when Peter decided to fish one evening, presumably in his own boat, six other disciples worked with him, forming a seven man crew.[11]

How many men could have been carried by a boat of this size? During the excavation we were repeatedly asked if a boat of this type could have carried thirteen men. So naturally when I began collecting literary evidence I first read through the Gospels looking for the passages where Jesus is recorder sailing on the lake with twelve apostles. I was surprized to discover that nowhere do the Gospels state that the twelve accompanied Jesus on any recorder boat trip.

The Gospels record Jesus being accompanied by his disciples —and Jesus had many disciples, from among whom he chose the apostles[12]. So there is no way of knowing how many people were in the boat in any of the voyages recorded in the Gospels.

Fortunately, several passages in Josephus do suggest the maximum capacity of passengers of these boats. Returning to Josephus' adventure of the sham fleet we read:[13]

I also myself went on board one of those boats, with my friends, and the seven armed men already mentioned and sailed for Tiberias.

Therefore, Josephus' boat held at least 15 men:

1 [Josephus] + ['armed men] + [2 + ?) ['friends'] + 4 [Sailors] + 12 [Helmsman/Captain] = (15 + ?) men.

Furthermore, during this action Josephus notes in connection with the taking of the captives from Tiberias:[14]

Ten citizens, the principal men of Tiberias, at once came down; these he took on board one of the vessels and carried out to sea.

Therefore, this boat also carried fifteen men:

4 [Sailors] + [Helmsman/Captain] + 10 [men of Teberias] = 15 men

Anson Rainey remarks that although Josephus normally uses the Greek word πλοΰον for boat, here he uses the term *μιᾷ τῶν ἁλιάδων*—one of the fishing boats', indicating their primary function.

Josephus notes that in all he lured 2600 of the leading citizens of Tiberias into the boats to be jailed in Migdal. Previously, as we have seen, he refers to 230 boats that took part in this action. Both of these numbers may be exaggerated, nevertheless, the number of men per boat is similar to the privious calculations:

2600 men of Tiberias : 230 boats = 11 or 12 men per boat.

11 or 12 men per boat + 5 men crew = 16 or 17 men per boat.

Based on skeletons he has examined, Joe Zias, a physical anthropologist at the Israel Antiquities Authority estimates that in the Roman-Byzantine period Galilean males averaged about 166 centimeters tall[15]. Based on current data on height/weight ratios, they probably would have weight about 62-63 kilogrames. Thus fifteen men would have weighed about a ton and could have easily fit into the boat.

Boats of the Kinneret in the 19th and early 20th centuries

Descriptions of the larger boats used on the Kinneret prior to the introduction of motorized transport show remarkable similarities to characteristics of the Kinneret boat. MacGregor, who visited the lake on 1869, notes that the largest boats on the lake were about 30 feet long with a breadth of seven feet (in metric

terms, 9.14 meters by 2.13 meters)[16]. In comparison, the Kinneret boat, with some of its parts removed in antiquity, is 8.20 m long and 2.5 m in breadth. Intuitively, MacGregor suggests that this was the larger limit of ancient craft on the lake. This is the way he describes these craft:[17]

"The boats now used in the lake by the fishers are all about the same size, rowing five oars, but very clumsy ones, and with a very slow stroke.[18] Generally only three oars were in use, and I much regret that I failed to remark whether there was a rudder, but I think there was none. Their build is not on bad lines and rather "ship-shape", with a flat floor, likely to be a good sea-boat, sharp and rising at both ends, somewhat resembling the Maltese.[19] The timbers are close and in short pieces, the planks "carvel built," and daubed with plenty of bitumen for that is readily obtained here.... The waist is deep, and there are no stern sheets, but a sort of stage aft."

We are also fortunate in having a description of boats on the Sea of Galilee by James Hornell.[20] The largest type of boat recorded by him was the Arabiye. The largest of these craft measured by Hornell was 7.2 meters long with a beam of 2.4 meters. The Arabiye was used primarily for work with the seine net and had fore and aft decks.

The influence of the seine net on Kinneret boat construction

The seine net was the largest and most valuable net used in fishing on the Kinneret. This net could be from 150 to 300 meters in length and required from ten to twenty fishermen to employ it. It had ropes about 70 meters long at either end and was 2 meters high at the sides, rising to 5-6 meters in the center. The net is termed segena in Greek and jarf in Arabic.

Nun gives a detailed description of the handling of a seine net, still used by fishermen until recent times.[21] The net is carried on the boat's stern deck. When everything is ready the boat goes to the starting point. Half of the crew remains on land holding the first rope, which is spread as the boat advances perpendicular to the shore under oar. When all the ropes of one end of the net have dropped into the sea, the boat turns, advancing parallel to the shore until all the net has slipped over the stern into the water. When this is completed, the boat returns to shore letting out the remaining ropes.

When the boat lands the remaining workers disembark and taking the end rope, begin to pull the net to shore as do their counterparts at the other end of the

net, thus capturing all the fish between the net and the shore, as is illustrated numerous times in Egyptian tomb paintings (Fig. 4). Nun notes that Jesus refers specifically to this type of net in the Parable of the Net:[22]

"Again, the Kingdom of heaven is like a net (Gr. segena) which was thrown into the sea and gathered fish of every kind; when it was full, men drew it ashore and sat down and sorted the good into vessels but threw away the bad."

This net appears to have had two basic influences on the large class of boats used on the Kinneret.

a. First, it defined the largest size of fishing boat required on this inland lake as one capable of using a seine net. This size, about 7-9 meters, is true for both the two millennia-year-old Kinneret Boat and for the Arabiye boats recorded by Hornell on the Kinneret in the thirties. There is no reason to assume that this optimum size changed in the interim.

b. Second, it required a large stern deck on which to load the net. Hornell notes this structural detail in relation to the Arabiye boats. The Kinneret boat was not preserved to deck high at stem or stern; however, Steffy believes that it must have had a stern deck.

On sleeping in the stern on the 'cushion' in Mark 4

This may clarify a passage in the New Testament. All three Synoptic Gospels refer to Jesus sleeping during a boat trip with his disciples. Mark, however, adds two details:[23]

"And a great storm of wind arose, and the waves beat into the boat, so that the boat was already filling. But he was in the stern (Gr. he prumne), asleep on the cushion (Gr. epi to proskephalaion); and they woke him, 'Master, do you not care if we perish?"

Why did Jesus chose to sleep at the stern? One possible explaination relates to the large stern deck for the seine net. Anyone sleeping upon the stern deck of a boat like ours would have been at the mercy of the weather and in the way of the helmsman. But, on the other hand, the area beneath this deck afforded the best shelter in the entire boat.

And what of the cushion? Already in the last century it was noted that the definite article used in relation to the pillow indicated that this was part of the boat's equipment. The most likely explanation for 'the cushion' is one I heard from a

veteran Arab Christian fisherman from Yaffo, Mussa Shibli, who has fished with the seine net on sailing boats on the Mediterranean Sea. He explained to me that the boats would normally carry sand bags for ballast. There were two types of these bags: one weighing 50-60 kgs was called kîs ṣābūra—which means 'balance, or ballast sack;' alternatey, a pair of sandbags, each weighing about 25 kgs, were carried. These were called meḥadet ṣābūra, which in Arabic means 'balance or ballast, cushion'.

The sandbags were used to trim the boat when under sail. When not in use, they were stored beneath the stern deck where they could be used as cushions for crew members resting there.

Conclusions

Virtually all the historical and iconographical sources relating to seafaring on the Kinneret in the first century AD refer to a large boat type. This normally had a crew of five and could accommodate as many as fifteen men, inclusive of crew. Relatively expensive, boats of this size were normally owned and operated by a family. When family members were insufficient to crew the boat, additional workers were hired.

Boats of this class were primarily used for fishing, adapted specifically for use with the seine net. This was apparently the factor that defined the size of the class—it had to be large enough to employ this net and to transport the large crew required to work the net. The boats had large stern decks on which the net was carried and from which it was spread. To judge from recent ethnological parallels on the Kinneret, they probably had a smaller deck at the bow, but were open amidships.

The boats were also used for the transport of men and supplies. In times of war they could be pressed into service for battle conditions, mainly as rapid transpors; with their shallow draft they were ideally suited for swift commando attacks on the shelving coasts which predominate in the Kinneret. They were apparently not unlike boats used for coastal piracy in the Mediterranean at that time. The Kinneret boat and the Migdal mosaic suggest that boat of this size had a cutwater and they could move under both square sail and oars.

Finally, the Kinneret Boat a represents the type of boat used by Jesus and his apostles in the Gospel stories as well as by the Jews in the Battle on Migdal.

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NOTES

1. Steffy / 1990:41
2. Carmi / 1990.
3. Adan-Bayewitz / 1990.
4. Gitler / 1990.
5. War III: 531-542.
6. Steffy / 1990:47
7. Wachsnann / 1990.
8. War II: 635.
9. War II: 641.
10. Mark 1: 19-20.
11. John 21: 2-3, Peters boat is mentioned specifically in Luke 5:3.
12. Mark 3:13; Luke 6:13; Acts 1: 21-22.
13. Life 32: 164.
14. War II: 639.
15. Zias / 1990.
16. MacGregor 1870: 353.
17. Ibid., 357-358.
18. My italics—S.W.
19. Presumably, MacGregor refers here to the Maltese dgaisa. This is a double ended creft with a flat bottom that lacks a rudder (Tilley 1969; 1973; Basch 1975: 234-238; Johnstone 1980: 96-97).
20. Hornell 1935:48, 72-73, fig. 11.
21. Nun 1989: 16-21.
22. Nun 1989: 22; Matt. 13: 47-48.
23. Mark 4: 37-38.

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ILLUSTRATIONS

Fig. 1 The Kinneret boat in its conservation tank. Photo: D. Syon

Fig. 2 Preliminary hull lines of the Kinneret boat by J.R. Steffy.

Fig. 3 The Migdal boat mosaic. Photo: D. Syon.

Fig. 4 Fishing with th seine net as portrayed in the tomb of Antefoker, XIIth Dynasty. From Davies and Gardiner 1920: pl. V.

Fig. 1

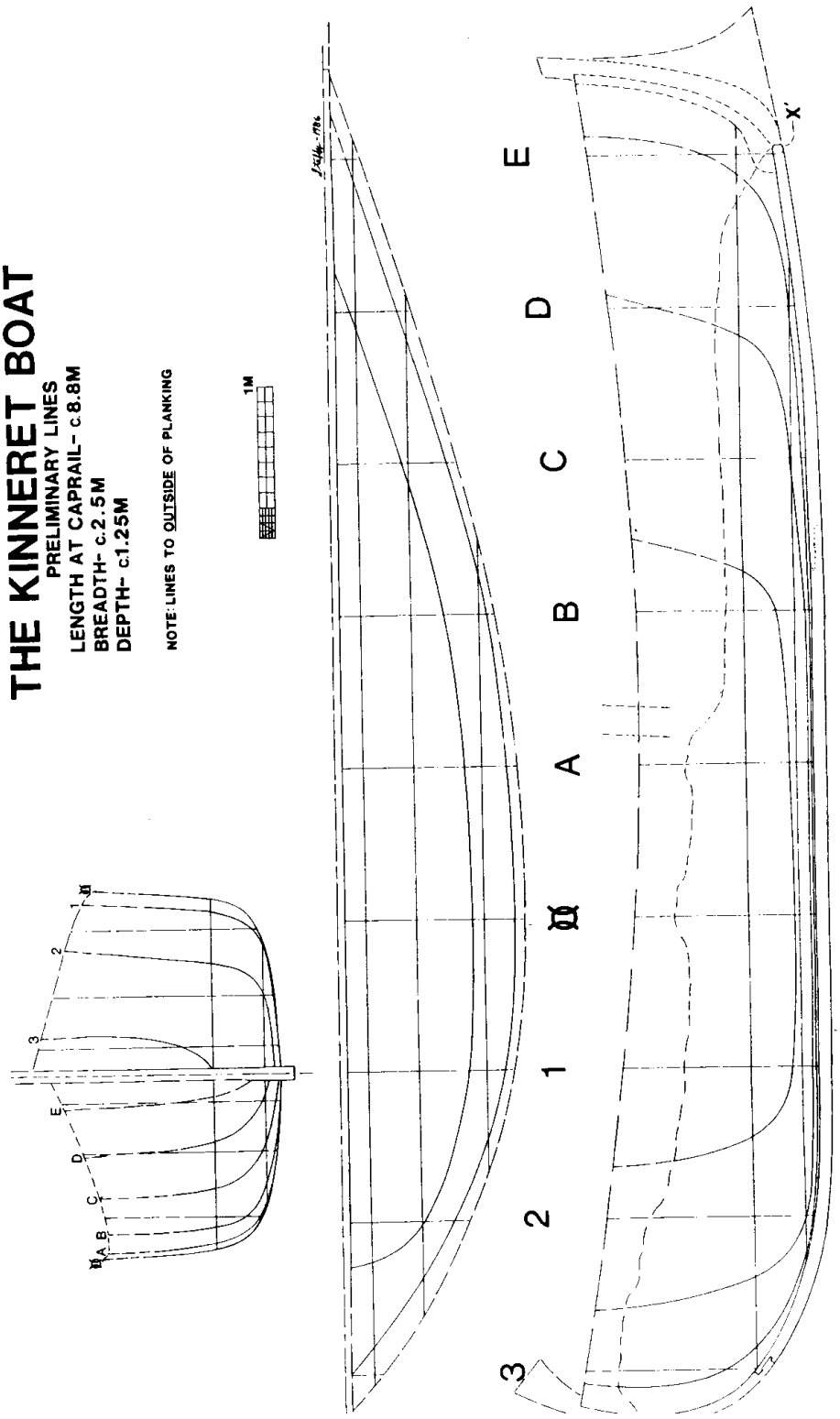
THE KINNERET BOAT
PRELIMINARY LINES
LENGTH AT CAPRAIL- c.8.8M
BREADTH- c.2.5M
DEPTH- c.1.25M
NOTE: LINES TO OUTSIDE OF PLANKING
1M
X
X'
A
B
C
D
E
1
2
3

Fig. 2