

COLLARED RIM JARS FROM THE COASTAL SITE OF TEL NAMI AS AN INDICATOR FOR INTERNATIONAL TRADE AT THE END OF THE LATE BRONZE AGE PERIOD

The Collared Rim Jar (Fig. 1a,b) has been, and continues to be, a subject of much interest, particularly for those dealing with the settlement of the Israelite tribes and economic aspects of the Late Bronze Age and Iron Age I. This work deals, in general, with different aspects related to the study of the Collared Rim Jar, its spatial and temporal distribution, typological attributes, and production workshops.

The Collared Rim Jar is considered as a type of cultural watershed. On the one hand, it comprises one of the most distinctive elements of the material culture of Iron Age I in



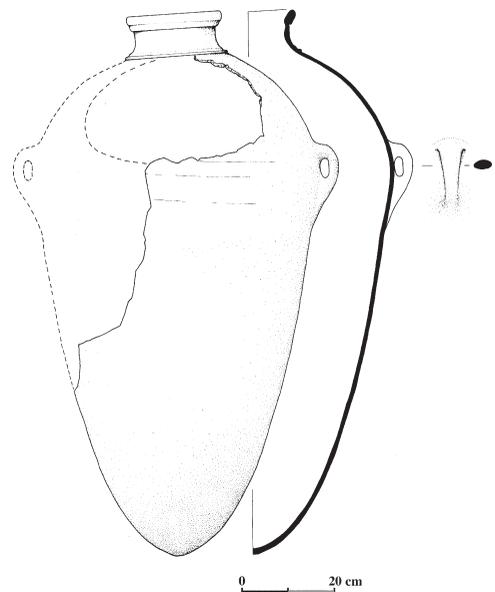
Fig. 1a. Collared Rim Jar from Tel Nami in situ (Photo: M. Artzy)

Israel and Jordan. On the other hand, its enigmatic appearance in Late Bronze Age IIb indicates that it is an element connecting two material cultures that differed in lifestyle and settlement patterns. The processes that brought about the end of one era and gave birth to a new one occurred in a relatively short time span and were caused by great political and economic changes that reshaped the Mediterranean basin - issues too broad to be discussed here.

Nevertheless, the attempt to assess the role of the Collared Rim Jar within the material culture of the two periods may hint at a process that began at the end of the Late Bronze Age and expanded into Iron Age I. A better understanding of the archaeological contexts in which the Collared Rim Jars from Tel Nami were found may shed light on the beginning of this process.

The Tel Nami settlement that arose in the Late Bronze Age thrived because of its ability to adapt to the needs of the international maritime trade of the era. Tel Nami was destroyed and abandoned when that trade was halted by a crisis at the end of the Bronze Age. In order to comprehend the essence of the settlement at Tel Nami, a comparison may be made between it and a specialist animal that thrives perfectly in a particular ecological niche, as long as the environmental conditions do not change. When they change - the animal becomes extinct. The settlement at Tel Nami ceased to exist when the geopolitical climate changed. However, the distribution of the Collared Rim Jars expanded and reached a peak a short time afterwards.

The first section of this work consists of a survey of the



1b. Drawing: R. Stidsing

history of research in which there is a short summary from its beginning to date. The second section comprises a survey of the distribution of the Collared Rim Jars in the different archaeological sites. In the third section, the architectural and stratigraphical contexts in which these jars were found at Tel Nami are presented. This is followed by typological and archaeometric analyses. In addition, an attempt was made to assess the volume of the vessels and to compare them with examples from other sites.

The morphological variety of Collared Rim Jars is vast, but it was possible to divide them into four major types. Samples were taken from these jars for petrographic and Instrumental Neutron Activation Analysis (INAA). The results show that there are five principal groups that originate from different locales. Two groups are local, from nearby sites along the Carmel coast or its foothills. A third group apparently originated in Cyprus, and the two remaining groups have a unique chemical profile that is similar to non-local groups of Collared Rim Jars from Tel Dan, which were also analyzed by means of INAA. Petrographic analysis revealed that this group originated in a geological formation of the Lower Cretaceous, which according to the geological map is exposed in southern Lebanon-northern Galilee regions or in eastern Jordan. Thus, by a process of elimination, it may be concluded that it is highly likely that the last two groups originated in Transjordan.

One of the theories suggested is that the Collared Rim Jars were used in the Egyptian administration for collecting taxes by vessel volume. In the context of this work, the volume of the vessels from Tel Nami and other sites were examined and it was found that the volume varied between 10%-30% among different types and even among sub-types. Thus it is difficult to accept the suggestion, as the evidence in favor is circumstantial.

The morphological variation and variety of workshops indicate that the Collared Rim Jars were brought to Tel Nami from different places and used for transporting goods as part of a system of local and international trade during the Late Bronze Age. The jars from Tel Nami represent the rise of east-west terrestrial trade. Thus, at the end of the Late Bronze Age, when maritime trade was at its height, Tel Nami was a junction connecting maritime and terrestrial trade with the east. When the crisis that brought about the end of the Bronze Age and maritime trade began, the settlement of Tel Nami was destroyed and abandoned. The terrestrial trade and the diminished maritime trade continued with changes in the routes and destinations.

Yossi Salmon

THE HOLOCENE PALEOGEOGRAPHY OF THE LAGOON ON THE DOR COAST



Fig. 1. Aerial view of the Dor area (Ministry of the Interior, Coastal Zone Management)

This research was carried out in the Dor area on the southern Carmel coast of Israel (Fig. 1). The stratigraphic sequence consists of sands unconformably overlying dark clays, with the dark clay unit becoming reddish-brown paleosol at the bottom. This sequence overlies the irregular topography of the late Pleistocene calcareous sandstone (locally named *kurkar*).

The topography in the studied area includes rising and depressed areas. The dark clays were deposited in wetlands that filled two different depressions. The sediments contain foraminifers, ostracodes and mollusks. The presence of these species indicates a low to brackish water salinity. The ages of the dark clay were obtained by using both ^{14}C and IRSL (Infrared Stimulating Luminescence). At the northern depression, the oldest date obtained by ^{14}C is $17,915 \pm 185$ BP and by IRSL $21,800 \pm 1,900$ BP. The top of the clay unit is dated by ^{14}C to $8,770 \pm 60$ BP and $8,650 \pm 75$ BP in the southern depression, and to $9,520 \pm 130$ BP in the northern one.

The sea level was low during the entire period. At 8,500 BP, the youngest date obtained in this research for the existence of coastal marshes at Dor, the sea level was still low, around -20 m and not higher than -13 to -16 m, and the coast was still at about 1.5 – 1 km west of the present one.

The human settlement, on the dark clay of the Carmel coast, started shortly after the marshes dried up, during the Pre-Pottery Neolithic period (about 8,100 BP), and continued to exist up to the Neolithic – Chalcolithic periods (up to 5,500 BP). Only during the Middle Bronze IIA, at about 4,000 BP, when sea level rose to about -4 to -2 m, did people start to settle on the *kurkar* hills along the coast, and sands started to accumulate in the area. The sea reached its present level during the last 2,000 years, carrying the sands that cover the coastal clays and the early settlements.

Dorit Eliyahu

MA'AGAN MIKHAEL SHIP MUSEUM ACTIVITIES

After four years, the components of the Ma'agan Mikhael ship have been reassembled, and the research program has been completed. As described annually in previous RIMS issues, the conserved timbers were successfully laid on the temporary wooden cradle built by Itai Preminger with the assistance of students and staff. The cradle is to be replaced by a permanent support for exhibition when finances allow. Until then the reassembled ship is on exhibition in the Ma'agan Mikhael Ship Museum.



Fig. 1. Iskandar Jabour presenting the results of his research on tapered pegs of the Ma'agan Mikhael ship (Photo: G. Votruba)



Fig. 2. Students and faculty in a special seminar dedicated to various aspects of research into the Ma'agan Mikhael ship, held at the MM Ship Museum (Photo: G. Votruba)

As also reported in earlier RIMS issues, a detailed research program was carried out by students and scholars. Among the students were: Iskandar Jabour, who studied the tapered pegs (Fig. 1); Idit Yovel, who researched the nails, the tenons and the limber holes; Avner Hillman, who analyzed aspects of using trees and timber; and Hadas Mor, who recently finished her M.A. thesis on the carpenter's tool marks. All the detailed recording of the components, both by drawings and photographs, sometimes down to the level of the grain, was also completed. These studies were presented at a meeting of the Department of Maritime Civilizations hosted in the Museum (Fig. 2). Greg Votruba discussed the re-assembly process and its main difficulties.

This multiphase four-year research was supported by the Israel Science Foundation and the University of Haifa. The Ma'agan Mikhael Ship Research Reports, Volumes 1 and 2, are currently being prepared for publication.

The Ma'agan Mikhael wood conservation was the final topic of a colloquium held at the beginning of January 2003, which dealt with various aspects of wood, mainly retrieved from the sea. The colloquium was jointly organized by the Hecht Museum, the Ship Museum and the Israel Antiquities Authority (IAA). Ten scholars and experts participated, representing various fields of research.

Zvi Mendel of the Volcani Center talked about tree worms and the possibility of identifying the tree origin based on the patterns they left in the wood. Nili Liphshitz of Tel Aviv University analyzed tree samples taken from underwater archaeological excavations. Based on re-sampling and re-assessment of the Ma'agan Mikhael timbers, Nili Liphshitz suggested that the origin of the various wood species was in northwestern Turkey. Elisha Linder went back to the eighties with the presentation of the Athlit Ram, concentrating on

aspects of the wood. This is so far the only unambiguous archaeological evidence of warship timbers. Their exhibition, together with the ram, is being designed in the National Maritime Museum. Avner Raban summarized aspects of excavated timbers that were used for the construction of the caissons, which served as the backbone of the breakwater of the ancient harbor of Caesarea. Hadas Mor represented the conclusions of her M.A. research study on the carpenter's tool marks. Baruch Rosen and Udi Galili of the Marine Archaeology Branch of the Israel Antiquities Authority talked about wood finds from underwater surveys and excavations along the Israeli coast. Kurt Raveh gave a briefing on shipwrecks in the Dor lagoon, summarizing more than thirty years of survey and underwater excavation. Renewal, conservation and reconstruction of buildings in ancient Acre, focusing on their wooden structure, was discussed by Avner Hillman of the IAA. Orna Cohen, the conservator of the Kinneret boat, and part-time consultant for the conservation of the Ma'agan Mikhael ship, presented the excavation, conservation and exhibition of the Kinneret boat.

The papers delivered at the colloquium described above will be published in a future publication of the Hecht Museum bulletin — *Michmanim*.

Ya'acov Kahanov

RIMS HOSTS THE MIDDLE BRONZE AGE STUDY GROUP

On February 14th the third annual meeting of the Middle Bronze Study Group (MBSG) was held at the University of Haifa, under the auspices of the Leon Recanati Institute of Maritime Studies and the Department of Maritime Civilizations. The MBSG was founded in 1999 by David Ilan (Tel Aviv University), Aren Maeir (Bar Ilan University), and Ezra Marcus (RIMS), with the stated mission "to forward the systematic study of the Middle Bronze Age of the Levant". Since then, two symposia/workshops have been held, respectively at Hebrew Union College and Tel Aviv University, and a website (<http://www.tau.ac.il/~archpubs/projects/index.html>) established under "Current Projects and Excavations".

This past year's meeting, which was chaired by Aren Maeir, focused on International Trade in the Middle Bronze Age and included the following lectures:

Ezra Marcus: *Means of Transportation, Geographic Scope and Volume of Trade.*

Avraham Malamat: *Hazor, Mari and the West.*

Anat Cohen-Weinberger: *Egyptian-Canaanite Relations based on the Petrography of Canaanite Pottery from Tell el-Daba.*

Sariel Shalev: *Metal Objects: A 'Simple' Picture in a 'Complex Period'.*

Respondents to these lectures were Avner Raban and Michal Artzy (RIMS), Daphna Ben-Tor (Israel Museum) and Eliezer Oren (Ben Gurion University), followed by a lively discussion. Over 80 people attended this symposium – the most ever at an MBSG meeting! The university Senate Hall, which served as venue, was filled beyond capacity.

The second half of every MBSG meeting is devoted to a pottery workshop of a selected region (Fig 1). This year, Middle Bronze pottery from the Akko plain and the Carmel coast, brought from institutes and storerooms throughout the country, was presented by the excavators and offered for examination and discussion. Among the sites and scholars represented were:

Tel Akko (Michal Artzy, Avner Raban, Ezra Marcus, Ron Beeri)

Tel Bira (Martin Peilstocker)

Akko Plain Survey and Tel Keisan (Martin Peilstocker)

Tel Aphek/Kurdane (Dina Shalem, Ezra Marcus)

Tel Tzevet (Shalom Yanklevitz)

Tel Megadim (Samuel Wolff)

Atlit (Eilat Mazar)

Tel Nami (Michal Artzy, Ezra Marcus, Ragna Stidsing)

Dor 'Love Bay' (Avner Raban)

In addition, some examples of rare imported Minoan pottery were kindly brought from the Hebrew University by Sharon Zukerman. All in all, a very pleasant and successful meeting was held.

Ezra Marcus



Fig. 1. Participants of the Middle Bronze Study Group examining pottery in RIMS' archaeological laboratory (Photo: D. Ilan)