

# From Ganos to Serçe Limanı: Social and economic activities in the Propontis during Medieval Times illuminated by recent archaeological and historical discoveries

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In the summer of 1989, an archaeological team including the author discovered a major amphora production center at Gaziköy, on the Northwest shore of the Sea of Marmara, in the modern administrative district of Tekirdağ, Turkey. This confirmed museum research that revealed the existence of such production sites on the Anatolian coast during the Middle and Late Byzantine periods. The discovery at Gaziköy led to an ongoing project studying the medieval amphora workshops and shipwrecks in the region of the Propontis. This project has included three major elements: surveys of the Gaziköy area, the waters around the Marmara Islands, and the land area of the islands. The next phase will include the excavation of a Late Byzantine shipwreck and further investigation of the monastic economy in the Sea of Marmara region.

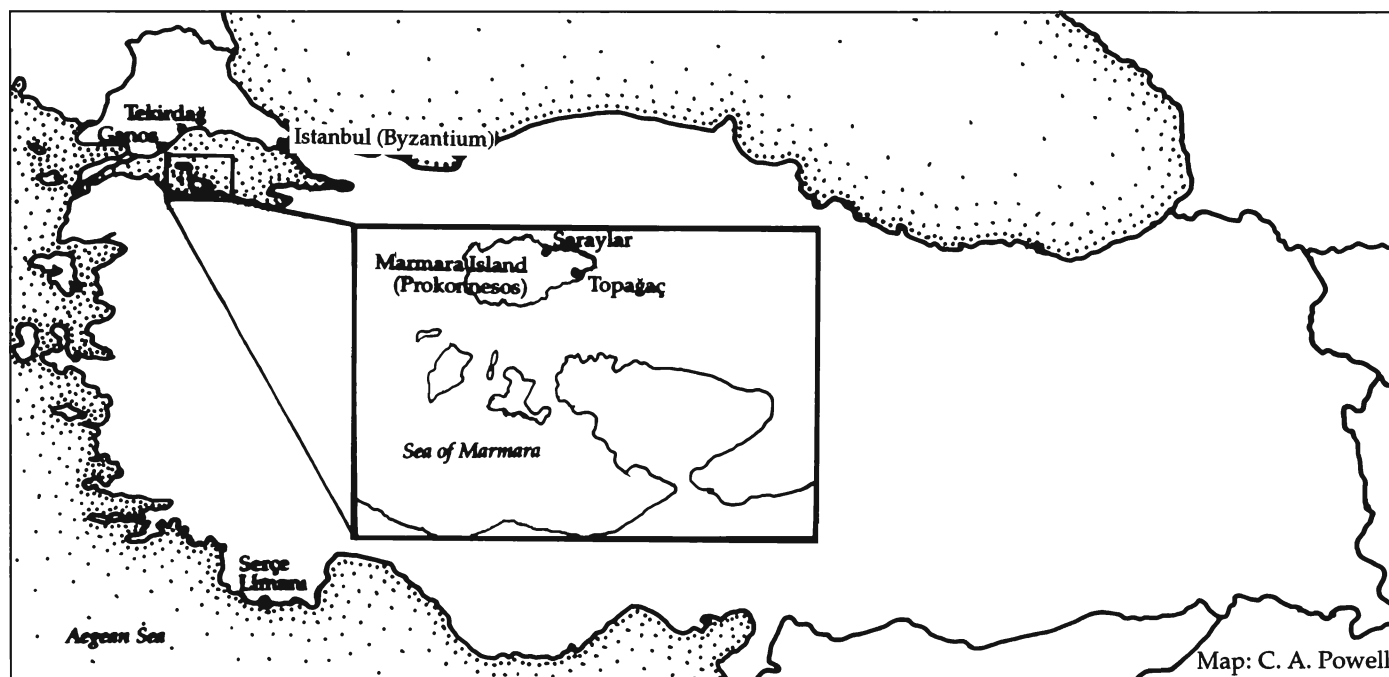


Fig. 1. The research area and the archaeological sites where the amphora samples were obtained for chemical analyses.



Photo: N. Günsenin

Fig. 2. The last potter of a "thousand years of tradition."

## Preliminary Surveys

Gaziköy was known in ancient and medieval times as Ganos (fig. 1). Strabo describes it as a Greek colony established during the first century BCE. From the tenth century CE onward, it was a thriving monastic center. The mountains of this region were a major pilgrimage site, comparable with Bithynian Olympos and Athos. Therefore, the Ganos amphora factory was a small part of a major medieval monastic settlement. According to Ottoman sources, the region had a reputation for wine production. This suggests that amphora production was a component of an important monastic economic activity. Production continued well into the Ottoman period when wooden barrels became the typical transport container in the Mediterranean. Even today, wine production and ceramic manufacture continue in the area (fig. 2).

Several surveys of the Ganos region were conducted in 1991–1993. Albert Hesse and his assistant, Florence Tixier, used magnetic prospecting techniques to pinpoint kilns. This writer, together with colleagues from the Tekirdağ museum, carried out a rescue excavation of a kiln at Ganos. With the help of Pamela Armstrong of the Oxford Byzantine Ceramics Project, we investigated glazed pottery production in the region.

These studies have shown the existence of many amphora kilns stretching for several kilometers along the coast. High quality clay deposits provide a nearby source of material for ceramic production. When these production sites were in operation, the area formed a part of the monastic estates of Ganos. Clearly the monastery functioned as a vertically integrated economic unit producing both a bulk commodity and the containers necessary to transport it.

Amphoras of the type produced at Ganos (author's Type I) are found all over the Byzantine Empire (fig. 3). This suggests that Ganos was part of a large scale trading network. Produce, particularly wine, from the monastery may have been used to obtain supplies that the monks could not produce locally. The monasteries at Athos still function this way.

All this provided indirect evidence of trade centered on Ganos. To obtain direct evidence, it was necessary to conduct an underwater survey. The focus of research therefore shifted from the shoreline to the most likely routes between Ganos and Constantinople. The Marmara Islands (ancient Prokonnesos) have provided an obstacle to navigation for many centuries. During the 1993–94 and 1995 survey seasons, eleven Byzantine shipwrecks were identified (fig. 4). Seven of these

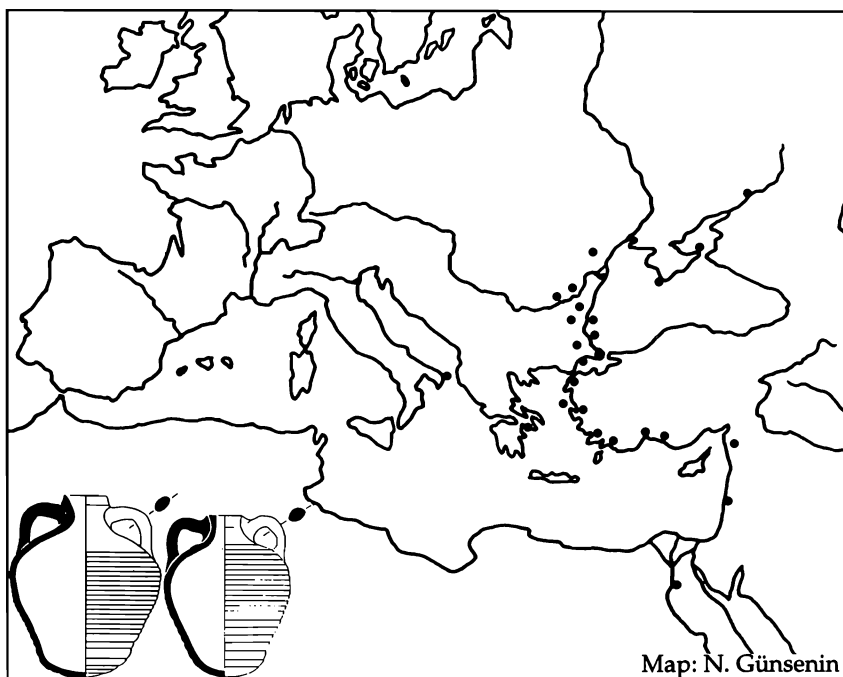


Fig. 3. The diffusion of Type I amphoras.

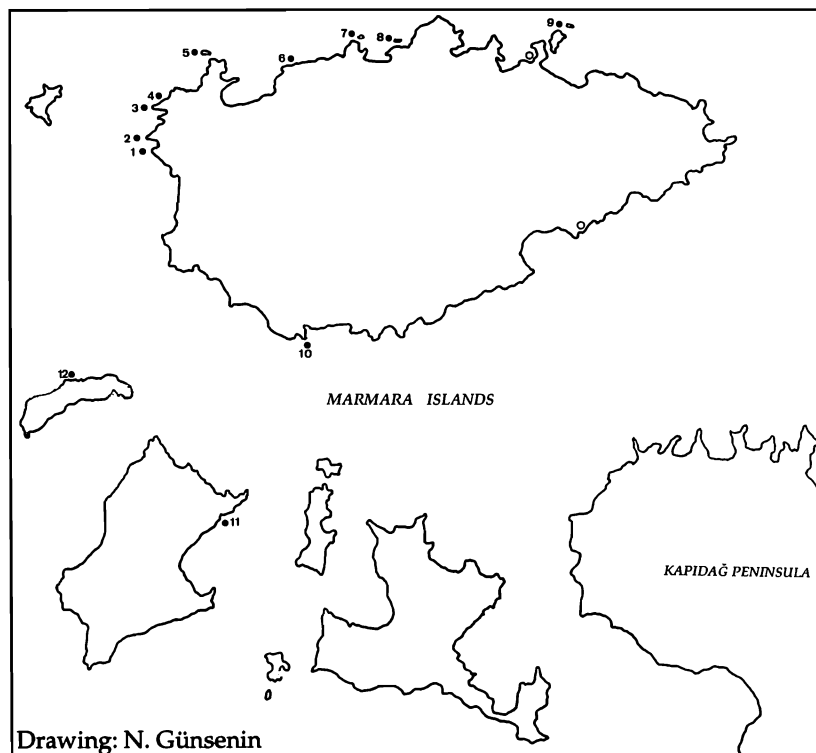


Fig. 4. Discoveries to date around the Marmara Islands.

1. Ocaklar Burnu wreck (11th century CE)
2. Çamaltı Burnu wreck (13th century CE)
3. Tekmezar I - Tekmezar II wrecks (11th century CE)
4. Kocayemişlik wreck (11th century CE)
5. Anataş adacık (11th century CE)
6. Kuyu Burnu tile wreck (7th century CE)
7. Küçük Ada water pipe wreck (7th century CE)
8. Taşada (Virankoy) wreck (11th century CE)
9. Eşek adaları wreck (11th century CE)
10. Çıhlı Burnu wreck (7th century CE)
11. Türkeli (Avşa) adası mound (3200–1100 BCE)
12. Ekinlik adası marble wreck (6th (?) century CE)

○ Kiln areas



Photo: E. Omur



Photo: E. Erk'akan

Fig. 5 (left). *The tile wreck.*

Fig. 6 (above). *The water pipe wreck.*

carried Ganos type amphoras. Another was laden with a cargo of roof tiles (fig. 5), while another carried water pipes (fig. 6). A seventh-century wreck carried globular amphoras of a form familiar from the contemporary Yassiada wreck. Finally, one carried amphoras of the last form used in maritime commerce. A twelfth wreck was found in 1997, this one containing architectural marbles, possibly from the sixth century CE (figs. 7).

#### The wrecks of Tekmezar Burnu

Two wrecks carrying Ganos-style amphoras were found approximately fifty meters southwest of the Cape of Tekmezar. The larger of the two shipwrecks, Tekmezar I, was one of the most substantial vessels of the Byzantine period. The 800 square meter amphora mound measures 40 by 20 m, and there are three visible layers of amphoras (fig. 8). Without counting the amphoras that are buried and

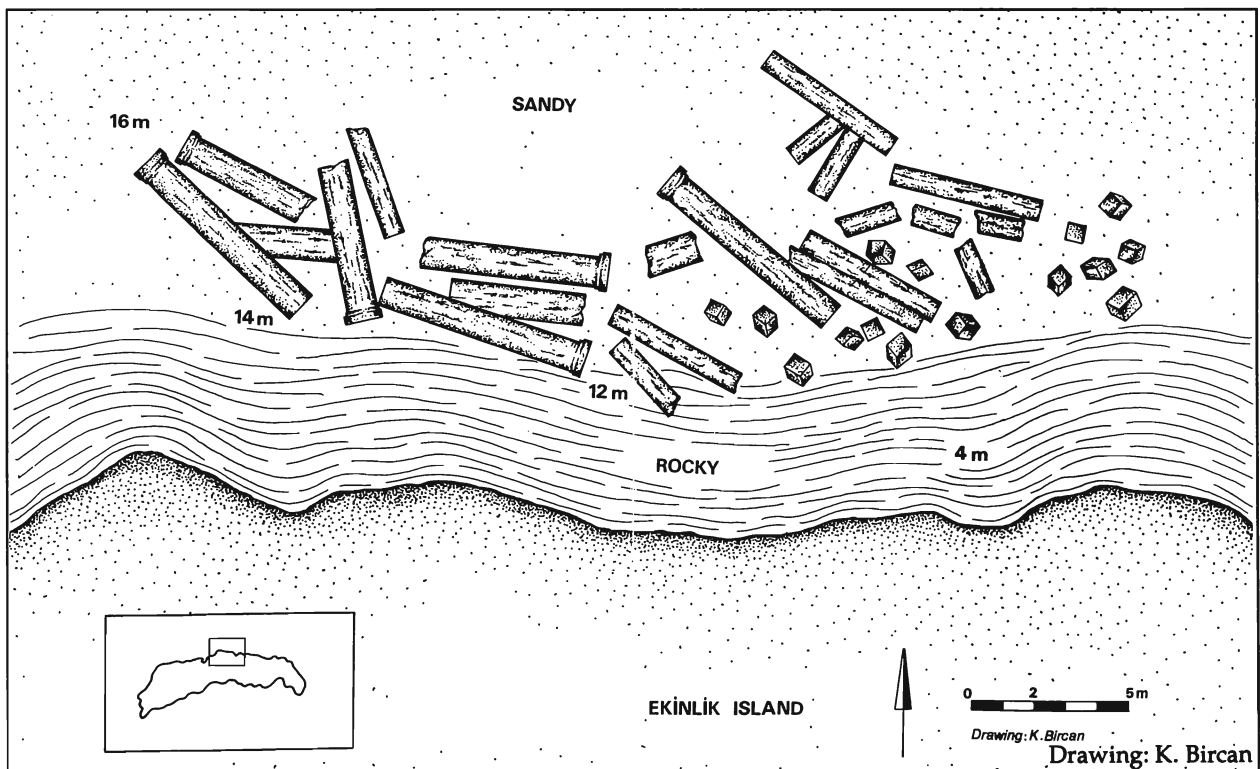


Fig. 7. *A sketch of the Ekinlik Island wreck on the sea floor.*



Fig. 8. *Tekmezar I wreck.*

Photo: E. Omur

out of sight, the visible cargo can be estimated at well over twenty thousand units. Such ships were called *muriophoros*, or “thousand-carriers.” If they were common, it is hardly surprising that Ganos-type amphorae had wider circulation than any other medieval type. Since a full amphora (40 cm high with a circumference of 90 cm) weighed about 12 kg, the total weight of the Tekmezar I cargo must have exceeded 200 tonnes. In contrast, the Serçe Limanı ship carried 103 amphorae, along with its other cargo, in a hull 15.36 m long.

Only twelve meters to the west, the Tekmezar II wreck carried about three thousand Ganos-type amphorae, now dispersed over 180 square meters. Each of the vessels was equipped with at least five “Y” shaped anchors (fig. 9). However, Tekmezar I probably required additional anchors that have not yet been found. The wrecks lie at a depth of thirty-five to forty-five meters, and their huge cargoes would make excavation difficult. However, an exploration of at least the Tekmezar I shipwreck might help reveal the techniques that ancient and medieval shipwrights used to build such enormous ships.

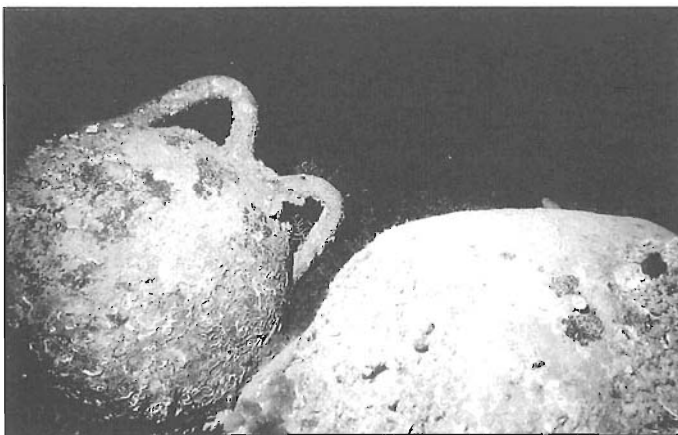


Fig. 10 (left). *Type IV amphorae of the Çamaltı Burnu wreck.*

Photo: E. Omur

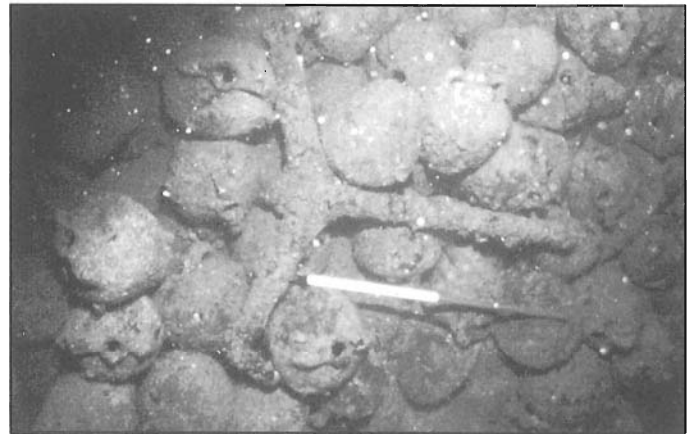


Fig. 9. *An anchor of the Tekmezar I wreck.*

Photo: E. Omur

### The Çamaltı Burnu wreck

Another tempting shipwreck is located just over thirty meters south of the rocky cape of Çamaltı Burnu. The amphorae on this wreck have been dated to the thirteenth century CE, placing them among the last amphorae in large-scale commercial use. The ship’s cargo has settled in three pockets at depths between twenty and thirty-two meters. The smallest amphorae (fig. 10) are in the top deposit, and the largest in the bottom deposit with the medium sized amphorae in the middle. Any hull remains are probably beneath the lowest deposit on the slope (fig. 11). Many anchors have been found associated with this wreck. About two hundred amphorae are currently visible, although the wide distribution of the cargo makes it difficult to assess its size and tonnage.

The Çamaltı Burnu wreck was chosen for further study because it is small and shallow enough to excavate economically, and it represents a period that has not previously been explored. It is hoped that it will provide valuable information from the thirteenth century about shipbuilding and commerce. The production site of the late amphorae is not currently known, so information from this wreck may help to identify the ship’s route and the amphora production sites. The author hopes to establish the infrastructure necessary for a full-scale excavation of the Çamaltı Burnu wreck as the first step towards a long-term project studying the Anatolian underwater heritage. We hope to follow the example provided by the collaboration between INA and the Bodrum Museum of Underwater Archaeology.

### The Marmara Production Sites

While surveying the offshore areas, the team also surveyed Marmara Island for additional amphora production sites. Two kiln areas were found, at Saraylar in the north and at Topağaç in the south (fig. 1). As both sites produced Ganos-type amphorae, the hypothesis that all such amphorae actually came from Ganos as wine-filled or empty containers must now be revised.

However, no clay sources were found on the island. It is therefore possible that Ganos clay was transported to Marmara for amphora fabrication and filling. It would have been substantially easier to transport raw materials, rather than finished amphoras. That both kiln areas are located on exposed beaches supports this. The Topağaç site was close to a small monastery, and the Saraylar site was associated with domestic buildings of as yet unidentified use. It is possible that both kilns were operated by monastic communities associated with or subject to Ganos.

To investigate this possibility, analyses were carried out by Helen Hatcher, an analytical chemist, then associated with the Research Laboratory for Archaeology and the History of Art in the University of Oxford. She used inductively-coupled plasma emission spectroscopy, a technique for analyzing the chemical composition of a sample, to check the concentrations of twenty-nine elements. The study included amphora sherd samples from Ganos, Saraylar, and Topağaç. Sherds of the Ganos-type amphoras found by INA investigators on the Glass Wreck were also compared to the other samples.

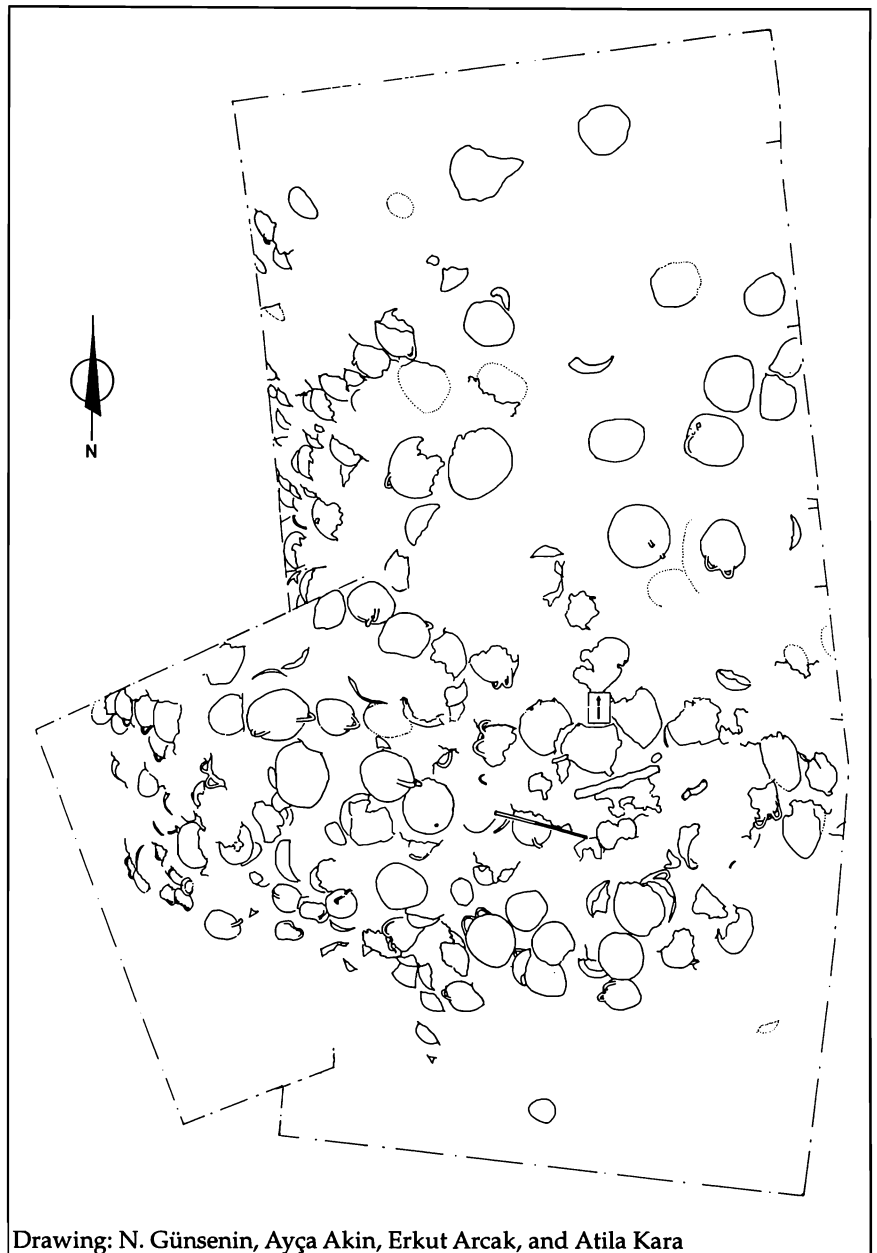
The analysis suggests that Ganos clay was used to make most, if not all, of the amphoras found on the Glass Wreck. However, Ganos clay is different from the Saraylar and Topağaç samples. Although these clays are similar, the common geology of the Sea of Marmara region makes the identification of a specific origin difficult.

### The Ganos-Serçe Limanı Connection

Nonetheless, Dr. Frederick Van Doorninck agrees that most of the Glass Wreck amphoras came from Ganos. This includes the group stowed separately in a stern compartment and marked with an "M," possibly for "Michael," who may have been the ship's captain. Since some of these were marked before firing, the ship's home port may have been very near where the amphoras were made, a proposition confirmed by the similar composition of the amphoras and the ship's storage and cooking ware. The Ganos area may have had strong Slavic (Bulgarian) influences, based on the potter's marks, tools, and weapons.

All this confirms the importance of Ganos in Byzantine trade relations. Vast quantities of wine-filled amphoras came from Ganos itself, or from closely associated sites in the Sea of Marmara region. This writer and Pamela Armstrong are researching whether the Marmara island monasteries operated independently or were subject to Ganos.

*Acknowledgments.* I would like to thank my permanent staff, Erkut Arcak, Korhan Bircan, Ayça Akin, Atila Kara, and the other members of the Middle East Technical University Underwater Research Team (ODTÜ-SAT). I would also like to express my appreciation to my colleagues who visited the sites and brought their valuable knowledge with them, Albert Hesse, Akif Işın (director of the Tekirdağ museum), F.H. Van Doorninck Jr., Yvon Garlan (who indicated the kiln at Topağaç), Nuşin Asgari (who



Drawing: N. Günsenin, Ayça Akin, Erkut Arcak, and Atila Kara

Fig. 11. Plan of Çamaltı Burnu third group amphoras.

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drew attention to Saraylar), and Eric Rieth. I am also grateful to Pamela Armstrong, with whom I have collaborated for some years and who has been particularly helpful in improving my understanding of medieval ceramic production, social life, and economic activities. Helen Hatcher, whose analyses are invaluable for our comprehension of understanding the historical facts, also provided invaluable information. Each year's survey was made possible by the permanent financial assistance of the French Institute of Anatolian Studies in Istanbul (IFEA). Ömer Koç, Defne Akçağlılar, Togan Müftüoğlu-Padi-Aware Foundation and Emre Omur also brought their help, especially in underwater equipment and photography. I am also thankful to the Ministry of Culture, and the Director of Museums and Antiquities for their permission to work. My deepest thanks to the villagers, my friends, and the local authorities of Gaziköy-Hoşköy and the Marmara islands. As INA has also learned, most of the shipwrecks had already been found by the local fisherman and divers. I will never forget the good will and information of Mustafa, Erdoğan, Kadem, and Captain Ömer. ☞

### Suggested Readings

Günsenin, Nergis

- 1990 *Les amphores byzantines (Xe-XIIIe siècles): typologie, production, circulation d'après les collections turques*. Université Paris I (Panthéon-Sorbonne), Paris, doctoral thesis. Atelier national de reproduction des thèses de Lille III.
- 1992 "Ganos: Centre de Production d'Amphores à l'Époque Byzantine," *Anatolia Antiqua II*, Paris: 193-201.
- 1995a "Ganos: résultats des campagnes de 1992 et 1993," *Anatolia Antiqua III* Paris: 165-178.
- 1995b "Glazed pottery production at Ganos," *Anatolia Antiqua III*, (with Pamela Armstrong), Paris: 179-201.
- 1997 "Analyses chimiques comparative des amphores de Ganos, de l'île de Marmara et l'épave de Serçe Limanı (Glass Wreck)," *Anatolia Antiqua V* (with Helen Hatcher), Paris: 249-260.
- 1998 "Récentes découvertes sur l'île de Marmara (Proconèse) à l'époque byzantine: épaves et lieux de chargement," *Archaeonautica 14*, Paris: 309-316.
- 1999 "Les ateliers amphoriques de Ganos à l'époque byzantine," *Production et Commerce des Amphores Anciennes en Mer Noire*, l'Université de Provence: 125-128.

For further information about this project refer to the website [www.nautarch.org](http://www.nautarch.org)

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## News & Notes

### **Book receives prize nomination**

*When Horses Walked on Water*, the latest publication by Kevin Crisman, Nautical Archaeology Faculty Fellow, and Art Cohn, Executive Director of the Lake Champlain Maritime Museum at Basin Harbor, has been nominated for the Francis Parkman Prize. This annual award for the best non-fiction book on the history of the United States is presented by the Society of American Historians. The first half of Crisman and Cohn's book traces the history of animal powered vessels from Roman times to the last horse ferry in the 1920s. The second half

of the book discusses a particular vessel, the horse-powered ferry they located in 1989, and excavated during 1990-92, two kilometers northwest of the city of Burlington, Vermont. The book contains the first detailed description of a horse-propelled vessel that is based on scientific observation. For a more detailed description of the book, please see *INA Quarterly* 26.1:20-21.

### **Students receive 1999-2000 honors**

The following students in the Nautical Archaeology Program at Texas A&M University have received non-teaching graduate assistantships

in the Program: Kroum Bachvarov, Felipe Castro, Adam Kane, Erika Laanela, Sam Lin, Mason Miller, and Asaf Oron. Erkut Arcak, Jonathan Faucher, Daniel Walker, and Amy Borgens all received LaSalle non-teaching graduate assistantships. An INA scholarship was awarded to Nancy DeBono while Ayşe Atauz has been awarded a TINA scholarship. Dan Davis will hold the Mr. and Mrs. Ray H. Siegfried III Graduate Fellowship while Sara Brigadier will hold the Marion M. Cook Graduate Fellowship. Erika Laanela will hold a Regents Fellowship. ☞