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The Internationalism of the Bronze Age Mediterranean: A Study of the Goods Recovered from the Uluburun and Cape Gelidonya Wrecks and their Effects on International Trade

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Abstract

In 1954 and 1982, the Cape Gelidonya and the Uluburun shipwrecks respectively were discovered. The treasure troves of goods upon these two ships provide evidence for discussing the international trade of the Bronze Age Mediterranean. The ships and the artifacts found reflect the connections between the many different coastal cities of the Mediterranean. Three different types of goods—personal goods, trade goods, and precious goods—have been determined for all the artifacts that have been found. These groups each allow certain theories concerning the internationalism of trade in the Mediterranean at this time. The theories based upon the artifacts explain the presence of certain goods on the ships and the extent to which Mediterranean trade brought different cultures together through the exchange of certain goods. The personal goods reflect a diverse sailing company, the trade goods a sharing of technologies and other items, and the prestige goods an exchange of status items in order to create alliances.

1. Introduction

The Bronze Age shipwrecks--the Uluburun and the Cape Gelidonya--are treasure troves of priceless artifacts that can explain the peoples and the international trading mechanisms of the Eastern Mediterranean Bronze Age. The discovery of the Cape Gelidonya opened the doors to a better understanding of international trade in the Eastern Mediterranean Late Bronze Age (1600-1200 BCE). The finding of the Uluburun in 1982 added more knowledge about international maritime trading. The contents of the ships allowed researchers to have physical evidence for the trading which they already knew existed through written documents. The artifacts on the ships can be divided into three different groups—personal goods, trade goods, and precious goods. By determining the group of artifact or set of artifacts, scholars can begin to understand a ship and its role in the trading world. These divisions let scholars to develop ideas concerning international trading principles through personal goods, the extent to which different peoples shared their good through trade goods, and the wealth and richness of goods being exchanged through precious goods.

2. Discovery of the Excavations

The discovery of the Uluburun wreck signified the advent of Bronze Age shipwreck archaeology. The wreck was found off the southern coast of Turkey near Kaş in 1982, and the Institute of Nautical Archaeology (INA) at Texas A & M University began excavations in 1984 (Fig. 1).[1]

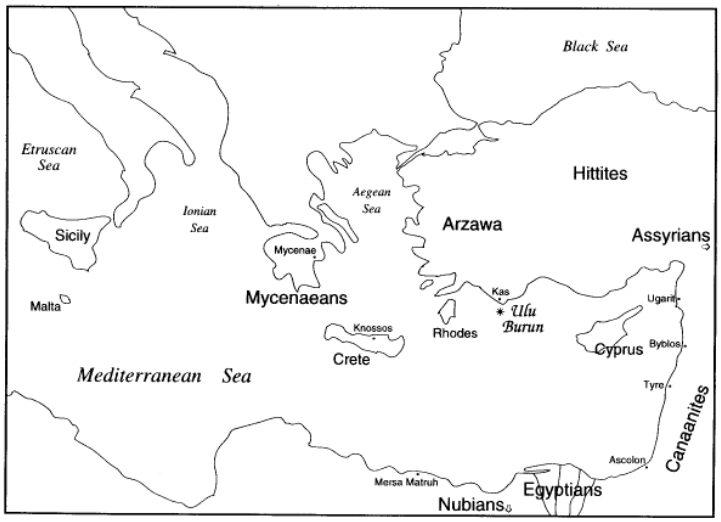

Figure 1-Map showing location of Uluburun ("Map of Eastern Mediterranean during the Late Bronze Age." Mycenaean Trade in the Mediterranean. http://score.rims.k12.ca.us/activity/mycenaean_trace/index.html.)

The site was originally found by a sponge diver, Mehmet Çakir, in the summer of 1982, who sketched the ox-hide metal pieces which he saw on the bottom of the ocean.[2] These drawings caught the attention of the INA bringing them to Turkey to excavate the largest find of Bronze Age items ever. Before beginning their excavations, the INA ran surveying dives in 1983 to decide the nature of the site, and to make a map of what they could see.[3] This map included four rows of copper ingots and several types of pottery items (Fig. 2).[4]

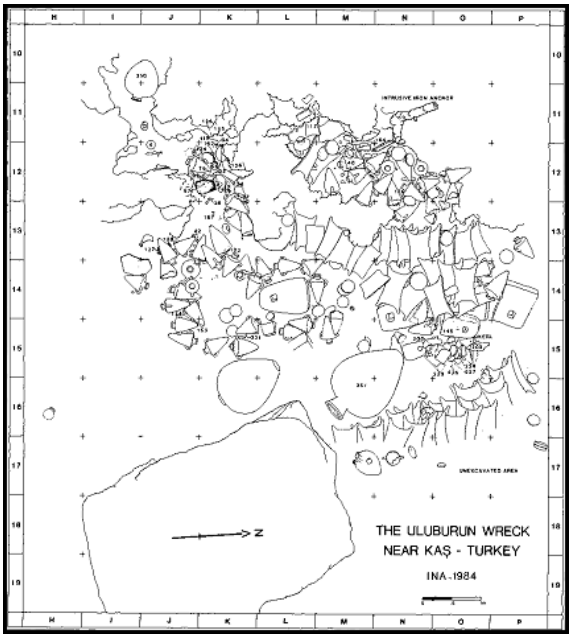

Figure 2-Site Plan of Uluburun, 1984 (Steve Clarkson. "Uluburun Site Plan." Marine Archaeology and Shipwreck Research Bournemouth University. Last modified April 2007. Accessed 20 April 2014. **http://www.marinearchaeology.org/EmilyLoughton.htm.)**

The artifacts found during the initial survey convinced the INA that this wreck needed to be excavated. The excavations continued for ten years, from 1984-1994.

The site itself was rather difficult to excavate due to the nature of the ocean floor, the depth, and the massive amount of artifacts that were on the site. The wreck lies on a slope with the bow facing downslope.[5] This angle caused some artifacts to slide down the slope and settle at different depths. The different depths made it difficult for divers to get to everything on the bottom, because they could only spend a small amount of time underwater. The divers had specific goals on each dive in order to get everything excavated. Their work created detailed site maps (Fig. 3).

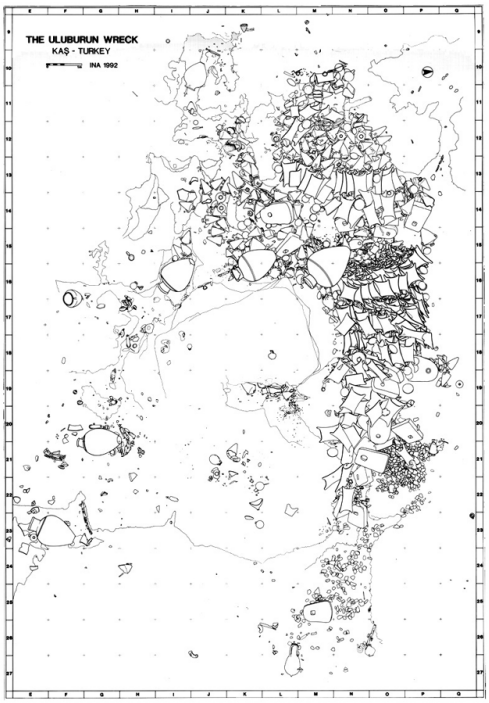

Figure 3-Site Plan of Uluburun, 1992 ("Site Plan." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/uluburun_turkey/photo_galleries/.)

With these maps, archaeologists reconstructed what the ship looked like when it settled on the bottom of the sea and where all the goods sat on the ship. As the site plan shows, the majority of the artifacts were found in their original location they were in when they ship went down. Archaeologists have not been able to determine the cause of the shipwreck.

The site of the Cape Gelidonya differs greatly from the Uluburun. Unlike that site, where the artifacts settled where they were on the ship, the Cape Gelidonya artifacts are more spread out. The promontory where the ship went down is Cape Gelidonya giving the name to the wreck. In 1954, Kemel Aras, a sponge diver, spotted the metal cargo of a ship off the southern coast of Turkey, not far from where the Uluburun would later be found (Fig 4).

Figure 4-Map showing location of Cape Gelidonya ("Report." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/cape_gelidonya_turkey/photo_galleries/.)

He returned and described what he saw to a journalist on board.[6] The journalist, Peter Throckmorton, told the University of Pennsylvania Museum (UPENN) about the wreck.[7] In a joint effort between UPENN and INA, the excavations began, leading to formulations about what happened to the ship. From observations of the waters along the coast line and the lay out of the artifacts on the sea bottom, archaeologists believe that the hull was ripped open after striking a rock pinnacle possibly due to the currents.[8] The artifacts then fell out of this hole in the hull as the ship continued to move settling 50 meters from where she struck the rock (Fig. 5).[9]

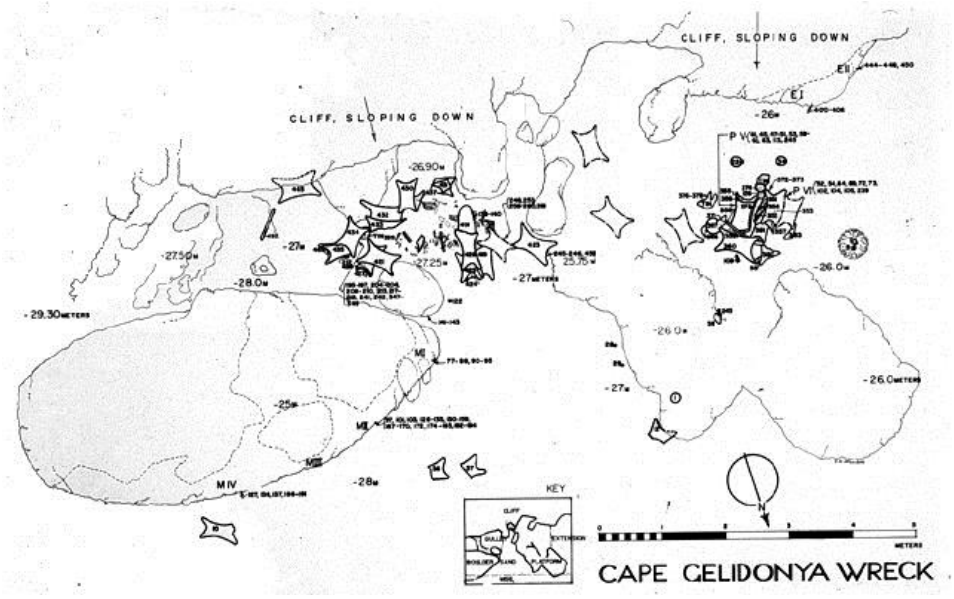

Figure 5-Site Plan of Cape Gelidonya Shipwreck ("Full Site Plan." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/cape_gelidonya_turkey/site_plan/.)

These conditions made the site difficult to excavate. The formations on the sea floor added to the problems. As the hull disintegrated, some artifacts landed in a gully at different depths from the rest of the site. These conditions made for a difficult excavation as the disintegration continued and the artifacts scattered even more. Still, as with the Uluburun site, the depth of the site protected it from looters and other problems which could have destroyed the artifacts and changed their integrity.

3. Cargo

The different types of artifacts from the wrecks aid in defining the nature of the ship that carried them. A majority of the archaeological evidence found on these sites can be split into three categories—personal belongings, trades goods, and prestige items.[10] Personal belongings are the easiest to define because they were what a sailors needs to live or uses in his work. In many cases, these items are used determine the origins of those on the ship. However, many personal stocks can be confused with trade goods. All sorts of goods can be traded. Such things were "exchanged or traded because of their economic and practical value rather than their symbolic value."[11] During the Bronze Age, metals were regularly traded. The many different forms of metals reflect the technological advances of the people of the Mediterranean and the trading connections between those people. Other items were exchanged as well, including organic items, like fruits and seeds. Still others were of a richer quality, linking them to prestigious commodities. The social value of such wares determines their placement in this category. These commodities are often involved gift exchange.[12] By their nature, prestigious merchandise usually contained precious metals and other materials of exotic quality or were crafted with more skill. Therefore, these commodities could either be traded or for personal benefit or exchanged as gifts, but they have their own category due to their material nature. These three different groups represent the artifacts gathered from the Uluburun and Cape Gelidonya wrecks, defining the nature of the ships and their context in the greater trading network of the Mediterranean.

3.1. Personal Goods

Men were needed to sail these two ships. This fact accounts for the amount of personal belongings on the ships as the sailors would have needed items to live off of as they could not use what they were ferrying around the Mediterranean. Within the personal goods, the artifacts can be divided between two different categories. Some were necessary for sailing the ship, while others were for the sailors. The supplies necessary for running the ship made the ship function. Twenty four stone anchors, essential tackle for any ship, were found on the Uluburun (Fig. 6).[13]

Figure 6-Stone Anchors from Uluburun wreck ("Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/uluburun_turkey/photo_galleries/.)

These anchors were strung together in order to keep the ship stationary. It is probable that the Cape Gelidonya also had weights, they have not been found yet. The trouble with finding them may be because the crew dropped them in

an attempt to lighten the ship to keep it afloat. Archaeologists also found ballast stones among the anchors of the Uluburun, which balanced the ship. The sailing equipment permitted the sailors to live a life filled with a daily ritual to keep the ship sailing.

The remainder of the personal items falls into the category of sailors' personal belongings. This group includes entertainment goods and religious possessions. Archaeologists found astragals, or knucklebones, at both the Uluburun and Cape Gelidonya wrecks (Fig. 7).[14]

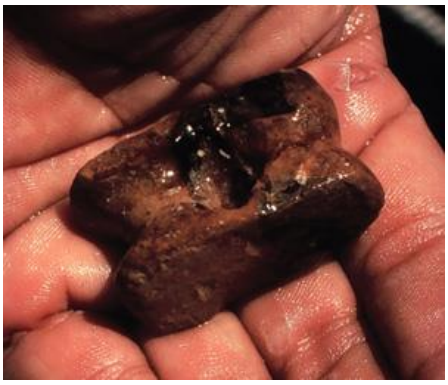

Figure 7-Astragal (knucklebone) from the Uluburun wreck (The Ellis School. "Uluburun: Artifacts." The Ellis School. Last modified 7 November 2002. Accessed 16 April 2014. http://sara.theellisschool.org/shipwreck/artifacts.html.)

These bones provide insight into the lives of the sailors. In the Bronze Age, astragals had many different uses, and scholars still debate their use on these specific ships.[15] One main use was for gaming. In these games of chance, the bones acted as modern dice.[16] The game required many bones in order to play. However, the divers found only one astragal on the Cape Gelidonya wreck. This find has led some scholars to believe the sailors practiced astragalomancy. Astragalomancy, a form of divination, indicated the divine will of the gods by the way the bone fell.[17] The complex nature of this one artifact shows the difficulty in determining details about the lives of the sailors. The astragals do show, along with the golden figurine (Fig. 8) and finger cymbals from the Uluburun, the religious nature and practices of the seafarers.[18] The rest of the finds from the wreck show the daily individual practices of those on the ship. On both sites, archaeologists found swords, fishing weights, oil lamp dishes, razors, and other items men would have needed.[19]

Figure 8-Gold-clad Bronze Female Figurine from the Uluburun Wreck (The Ellis School. "Uluburun: Artifacts." The Ellis School. Last modified 7 November 2002. Accessed 16 April 2014. http://sara.theellisschool.org/shipwreck/artifacts.html.)

From these personal possessions, theories about the origins of the sailors can be formulated. Cemal Pulak, one of the leading archaeologists on the Uluburun site, proposed that at least two of the sailors were of Aegean origin because of the pairing of certain personal belongings, like swords and drinking vessels.[20] While this origin theory makes sense, it could be wrong based upon the proposed route of the Uluburun. Pulak bases his reasoning for this theory on the findings of paired goods, which have been traced back to the Aegean region.[21] However, the items may have been picked up on earlier journeys through the region. The Cape Gelidonya also yielded another artifact that spans the religious and the non-religious personal items and can provide information about the crew on the ship. Scarabs, or small little clay pieces in the shape of an Egyptian beetle, provide a source of information based upon the inscriptions on them (Fig. 9).[22]

Figure 9-Scarabs from Cape Gelidonya ("Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/cape_gelidonya_turkey/photo_galleries/.)

Scholars are still in debate about what the scarabs were used for. Some believe them to be religious talismans, others a good luck charm, and still others a seal.[23] Their place of origin is one of the easiest to figure out from all the artifacts on the wreck site because they were usually acquired in Egypt.[24] Because of their presence on the ship, another theory can be proposed that some of the sailors were of Egyptian origin or from the areas around Egypt.

The sailor origins theory based on the types of personal belongings found proposes that the Uluburun was not on its maiden voyage. The types of the personal goods found exhibit certain aspects about the lives of the men who sailed the sea during this time. As most of the personal artifacts excavated came from the Uluburun, the supplies only provide a look at the lives of the sailors on this single ship.

3.2. Trade Goods

The sailors on these ships sailed around the Mediterranean as a part of the trading network. Based upon the artifacts excavated from these sites, scholars have proposed that the Uluburun and Cape Gelidonya wrecks were trading vessels. The major objects found on each ship were metals, both processed and unprocessed. These metal ingots take up most of the site plans for each wreck (Fig. 3 & 5). On the Uluburun, copper ingots were found in three different shapes: ox-hide ingots, pillow ingots, and bun ingots (Fig. 10).[25] The Cape Gelidonya wreck consisted of mainly ingots in ox-hide, plano-convex, and slab form (Fig. 10).[26]

Figure 10- Bun Ingot from Uluburun (left), Ox-hide Ingots from Cape Gelidonya (right) ("Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/uluburun_turkey/photo_galleries/. "Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/cape_gelidonya_turkey/photo_galleries/.)

The fact that these wrecks contained a large quantity of metal ingots shows the importance of metal trading during the Bronze Age and its place within the Mediterranean. Metals made up a majority of the items in a society and required them to be advanced and complex in order to produce amount they had. The characteristics of the metal ingots provide information about the societies and their changing state. The ingots on the Cape Gelidonya wreck show unusual features that hint at the deterioration of smelting techniques,[27] which reflect political and social disturbances around the Eastern Mediterranean that may have included a decrease in specialization.[28] The condition of the metal ingots offers information about the processes required for making metal pieces and the importance of them within the societies of the Mediterranean.

The Cape Gelidonya wreck provides a case study, based upon the different metals and smelting tools found, for how a small merchant ship operated. Alongside the ingots on the Cape Gelidonya, archaeologists found tons of bronze tools and instruments.[29] Though some were personal belongings, most were for metal production. Among the broken pieces for melting down to mix with the large ingots, archaeologists discovered castings, attaching devices, and other metal items necessary for smelting.[30] They also found stone pieces necessary for metal production, including mace heads, mortars, anvils, and smoothing stones.[31] The presence of these items on the Cape Gelidonya suggests that the ship functioned as a small metal trading ship (Fig. 11).

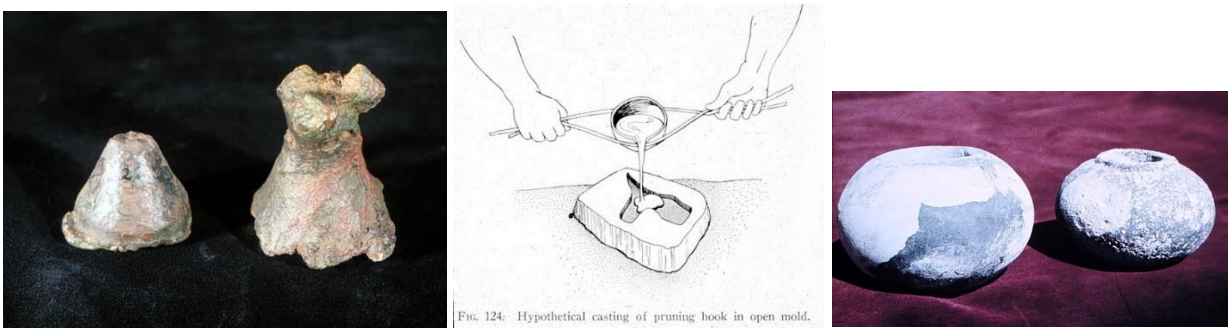

Figure 11-Smelting items from the Cape Gelidonya (top left-casting waster, bottom left-mace heads, right-hypothetical casting mold) ("Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/cape_gelidonya_turkey/photo_galleries/.

Because of the presence of these materials, the ship either made metal wares on the ship, or the products were crafted as soon as the ship landed in port.[32] This information about the Cape Gelidonya wreck can only be inferred from the items that were found on the site, but their existence reinforces the theory that the Cape Gelidonya was a small trading ship that carried the necessary tools and equipment for smelting metal.

As for the Uluburun, other artifacts were discovered for trade. A few glass ingots were scattered over the site, but not enough to constitute a huge majority of the ship's cargo. The glass ingots, a cobalt blue color, remain some of the earliest pieces of glass ever found and proposes a Mediterranean Bronze Age society that could work with raw glass.[33] The other major cargoes for trade are the numerous *pithoi* and amphorae present on the Uluburun site, many of which have been labeled Canaanite in origin.[34] The presence of these jugs does not directly indicate that they were used for trading, but their contents do. The *pithoi* and amphorae contained many different types of substances, both non-organic and organic. One of the non-organic amphorae contained glass beads.[35] Beads, during the Bronze Age, were used for decoration as well as for exchange or trade. This fact offers explanation for the presence of beads at the Uluburun site and at Cape Gelidonya.[36] Other amphorae had organic residues providing an opportunity for researchers to determine the original contents.

The organic remains in the amphorae reveal another important cargo of trade throughout the Mediterranean during the late Bronze Age, food. Numerous different organic materials have been identified in the samples of the amphorae from the Uluburun wreck. The list is extensive, including almonds, acorns, pine nuts, pistachios, olives, pomegranate and fig seeds, coriander, barley, other grasses, and resin.[37] The extensive nature of the types of organic cargo complicates the understanding of the nature of the Uluburun. Some of the organic supplies may have been for feeding the crew. A sailor's diet would have consisted of olives, barley or other grains, and nuts. The most likely explanation for most of the organic cargo is that it was for trading.

The pomegranate seeds offer an interesting example of a commodity that bridges the gap of a personal and trade merchandise as well as a precious ware craved by many societies. Pomegranates, originating from east of Mesopotamia, held a religious significance for many cultures throughout the Eastern Mediterranean.[38] The desire for pomegranates created a market in the west sending them across the Mediterranean on trade ships like the Uluburun. Their occurrence gives rise to a theory about the nature of the Uluburun ship. Because of the luxurious nature of pomegranates due to their exotic origin and their presence at high-status sites, some scholars have proposed that the Uluburun was an elite trading ship.[39] One problem with such a theory is that it is not known if pomegranate seeds were solely for elite or religious uses or if they were a common sailor's food. If the gift exchange idea is correct, the pomegranate seeds are not the only item from the Uluburun to support the theory.

3.3. Precious Goods

Gold, silver, and other objects considered precious appeared amongst the metal ingots of the Uluburun. Their existence provides evidence for the practice of elite gift exchange. Although the Cape Gelidonya wreck yielded a few, the majority of the precious wares came from the Uluburun, creating a distinct difference between the two wrecks. These gold and silver pieces offer types of goods for the elites. A gold chalice was discovered in the early excavations at the Uluburun site (Fig. 12). Made of three pieces of gold, the design of the chalice implies a Cypriot origin.[40] The remaining gold and silver items for exchange were comprised of jewelry, in the form of pendants and bracelets, similar to the only precious finds on the Cape Gelidonya wreck.[41]

Other precious commodities came from more exotic places. The Uluburn excavations produced a large quantity of ivory. The ivory came from many different creatures. There was an elephant tusk that was cut cleanly at both ends, a hippopotamus tooth, and many other exotic cargoes, like ebony wood.[42] Though the purpose of such exotic items is not known, as many were found unprocessed, the final products could be something similar to the ivory duck containers found on the wreck site (Fig. 12).[43]

Figure 12-Precious Goods from the Uluburun ("Photo Galleries." Institute of Nautical Archaeology. Accessed 16 April 2014. http://nauticalarch.org/projects/all/southern_europe_mediterranean_aegean/uluburun_turkey/photo_galleries/.

The presence of such commodities indicates that the Uluburun ship represented a gift exchange between peoples to create connections. These commodities, combined with the personal belongings and trade stocks, show the international nature of the Eastern Mediterranean during the Bronze Age.

4. Modes of Exchange

The nature of international trade in the Mediterranean was interconnected based on the range of items found on the Uluburun and Cape Gelidonya. Amphorae came from Canaan, ivory from Egypt and Syria, metal from all over, pomegranates from Turkey, scarabs from Egypt, beads and other small items from around the Aegean, gold from Mycenae, copper from Cyprus, pottery from Cyprus and Crete and Mycenae (figure 13).[44]

Figure 13-Trade map of Mediterranean Goods, focus on the Uluburun route (Anandaroop Roy. "Beyond Babylon: Art, Trade, and Diplomacy in the Second Millennium B.C." Metropolitan Museum of Art. Last Modified April 2008. Accessed 20 April 2014. http://www.anandarooproy.com/portfolio/project/63.)

This conglomeration of goods from all over the Mediterranean shows the networks the different groups of people formed with one another. The Uluburun and Cape Gelidonya represent two different types of trade ships. The former most likely embodies a gift exchange trading vessel, while the latter seems to be a smaller, privately owned enterprise based solely on the metals trade. The Eastern Mediterranean at this time contained many flourishing cultures all vying for trading opportunities to show wealth and status of their respective societies. The growth of international trade developed from the need for metal making materials in the Aegean region and developed to include luxury items representing power.[45] It has been argued by scholars that the Minoan kings of 1700 BCE ruled the Mediterranean trade, which could explain why the natural routes of many ships, and the proposed route of the Uluburun ship, sailed towards Crete and Mycenae, which were during this time period close allies.[46]

This conglomeration of goods also exhibits another interesting fact about the nature of these trading vessels and the societies of the times. From documents of that time period and other artifacts found on land, the likely place of origin of the Uluburun ship would be on the Levantine coast, perhaps a port area in Ugarit. Ugarit sat in the perfect location to trade with the Mediterranean societies in the west and the inland cultures around Mesopotamia to the east.[47] The cities along the coastline devoted their energy to trading products like olive oil and pomegranates, metals, and pottery from all over the region, becoming the outpost for a majority of the cultures.[48] These goods, particularly the metal and the pottery, were ones found on the Uluburun and Cape Gelidonya sailing towards the Aegean region. The complexity of Mediterranean trading is shown through the considerable amount of information gathered from the artifacts at these wreck sites as well as the lack of knowledge concerning the origins of the ship and their routes.

The Late Bronze Age shipwrecks, the Uluburun and Cape Gelidonya, provide compelling evidence for the interrelated networkds of the coastal societies of the Eastern Mediterranean and beyond. Both wrecks are time capsules for their respective moments in history. Their artifacts correspond with cultures from all over the area as well as the types of trading these cultures were interested in pursuing. The tons of metal found on each site supports traditional ideas about metallurgy and the important of metals in trade during this time period. The mixture of personal belongings, trade cargoes, and precious commodities explains the different types of trading that would have occurred, for example the gifts exchange between elites and small trading enterprises. The shipwrecks have provided a unique opportunity to explore the formation of the trading world of the Eastern Mediterranean and have added to the academic discussion focusing on the internationalism of the trading in the Bronze Age.

5. Acknowledgements

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6. Endnotes

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27 Smelting techniques at the time of the Cape Gelidonya wreck were deteriorating because or disturbed social and political conditions. One sample from the wreck shows no evidence of a structure for casting, causing the copper to become mushy rather than molten. The ore also seems to have come from a different area as it contained more cobalt. For more information about the Cape Gelidonya wreck and Bronze Age Metal Trade see, James D. Muhly, Tamara Stech Wheeler, and Robert Maddin, "The Cape Gelidonya Shipwreck and the Bronze Age Metal Trade in the Eastern Mediterranean, *Journal of Field Archaeology*, Vol. 4, No. 3 (Autumn 1977).
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