



Old Money: The Uluburun and Gelidonya Wrecks

Episode 016

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The Uluburun wreck is our prime focus today, as it is the oldest shipwreck to have been found that still contains a substantial portion of the ship itself, and, more importantly, was also carrying an ancient treasure trove when it sank. We'll get into the details all in good time, but that's an important point with which to lead. We've found other shipwrecks that predate the Uluburun wreck but these older shipwrecks give us almost no evidence about the ships themselves, and the remaining evidence related to the cargo they dumped is almost entirely evidence of pottery and basic goods that were rather unremarkable, save in their local context. The shipwreck found in 15 to 30 meters of water off the coast of the Greek island of Dokos is a perfect example of this. It has been dated between 2700 and 2200 BCE, technically giving it the current crown for oldest shipwreck found, but there are certainly more intriguing and informative wrecks out there, albeit from later times.

Two of those shipwrecks are our subjects today, namely, the shipwrecks found off Uluburun and Cape Gelidonya. The locations of each wreck are somewhat near one another off the coast of southern central Turkey, about midway between the islands of Cyprus and Crete. Now, I hope today to look in a reasonably tidy fashion at each wreck individually, the specifics and importance of each one, but then I also want to try and place the wrecks in their broader context. That context, in short, is the still burgeoning trade of the Late Bronze Age, and bronze, being a composite of copper and tin, wasn't always readily available right where the people needed it. Trade and transport was required, as we all instinctively understand. So far at this late point in the Bronze Age, we haven't yet discussed the evidence of high volume commodity trade among the Aegean and Eastern Mediterranean peoples, but today is where that fits into the story.



Our two shipwrecks have at least one thing in common, though I'd bet we'll pinpoint a few more commonalities before we wrap it up today. The glaring common trait is that the excavation work on both ships was run by Dr. George Bass, a pioneer in the field of nautical archaeology. Bass founded the Institute of Nautical Archaeology in 1973. Since that time, the Institute has gone on to lead the field in innovation and shed light on just how useful nautical archaeology can be to the wider historical disciplines. Perhaps at a later date we can talk about the how and why behind nautical archaeology being such a latecomer to the world of academic disciplines, but not today. Anyway, Dr. Bass spent years working both wrecks, and I'm not quite sure which one to dive into first. Uluburun has been dated to an earlier period, somewhere in the years immediately following 1320 BCE. The Cape Gelidonya wreck has been given a later date, somewhere around 1200 BCE. The fix for me is that Cape Gelidonya was discovered first, in 1960, making it the first ever ancient shipwreck to have been excavated in full from its seabed resting place. That is quite important in terms of the development of nautical archaeology as a discipline. However, the Gelidonya wreck didn't yield the amount of artifacts and useful evidence the Uluburun wreck did, and what Gelidonya did yield isn't quite as flashy or interesting. I guess we'll start with the Gelidonya wreck then, and end on a high point. It'll probably help the narrative too, which is welcome news for me.

So what is there to say about the shipwreck at Cape Gelidonya. Well, it was first discovered by a sponge diver in 1954 as he plied his trade in the waters off the Cape in southwest Turkey. This diver shared his discovery with a journalist and amateur archaeologist who was working in the region, Peter Throckmorton, who was able to locate the wreck in 1959. He immediately recognized the age and significance of the wreck site, and contacted the University Museum at the University of Pennsylvania who, he hoped, would organize an excavation of the site. Throckmorton wouldn't be disappointed, for in 1960, George Bass became the first archaeologist to lead the complete excavation of an ancient shipwreck from the seabed. Because the field of nautical archaeology was so young, Bass adopted many techniques from terrestrial excavation, adapting them to the underwater environment as necessary. I'm not very knowledgeable about the techniques of maritime archaeology and, even if I were to read up on them, I imagine it would take someone who's actually participated in an excavation to convey a useful and coherent sense of what all is involved. Anyway, that whole discussion is 'history related,' but not necessarily history, so I'll leave that alone. Perhaps we can talk about the site of the wreck and then look at how the contents of the wrecked ship inform our view of history in the region.

The wreck was named after the land near which it was found, Cape Gelidonya. This cape juts out into the Mediterranean ever so slightly, and because the cape is the point where the Taurus Mountains terminate and the sea begins, the waters around Cape Gelidonya have a reputation for being rocky and treacherous. In his *Naturalis Historia*, Pliny had this to say about the Cape and the handful of islands lying just off the cape, islands that the Romans knew as the Chelinonae: "In the Lycian sea are the islands of Illyria, Telendos and Attelbosa, the three barren isles called Cyprae, and Dionesia, formerly called Caretha. Opposite to the promontory of Taurus [Cape Gelidonya] are the Chelionae, as many in number, and extremely dangerous to mariners."

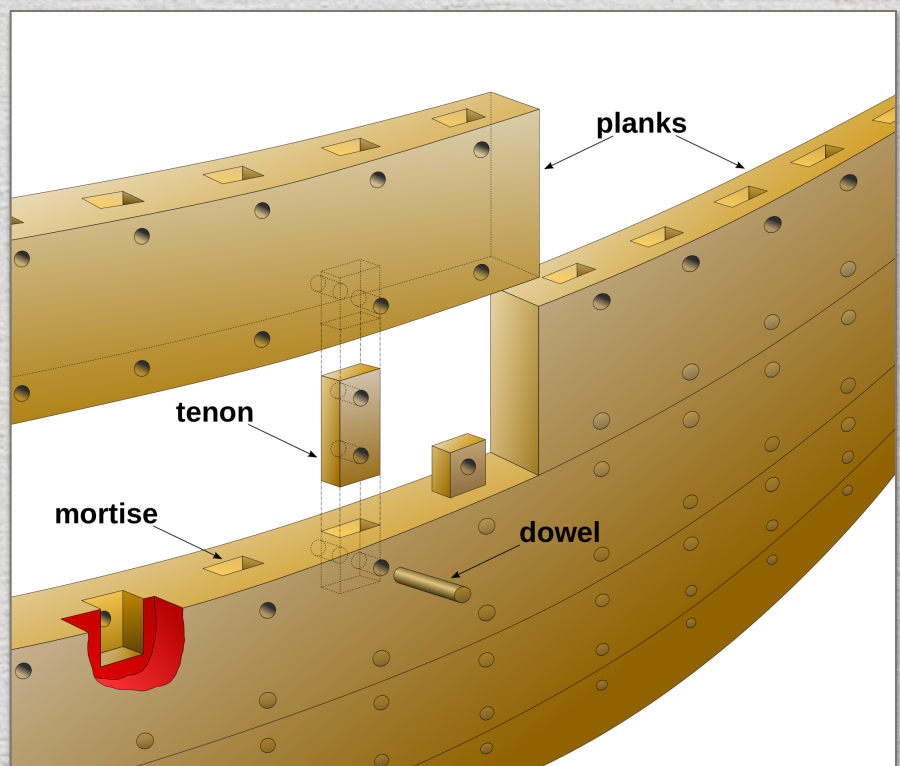
Pliny wrote this sometime in the first century, so could we say that the wreck of this ship contributed to the reputation of Cape Gelidonya as being dangerous, even 1200 years before Pliny recorded the Roman perceptions of the world as they saw it? I don't see why we couldn't, so what the heck. An initial point about the wreck itself is that almost all of the physical ship was gone: a few small fragments remained. It's in the ship's cargo that the useful information lies. For instance, the distribution of the cargo indicates that the ship vessel must have torn a hole in its bottom by striking a jagged rock just below the water's surface. As the ship went down, her cargo was strewn in a line along the seabed, the ship herself coming to rest about 50 meters away from where she bled her cargo. Let's discuss the small hull fragments first and then we'll focus on the cargo.



Items recovered from the Cape Gelidonya wreck site (below) and a plank fragment with the hole where a tenon would have been inserted.



The team recovered a few fragments, but one tiny fragment yielded almost all of the useful information to be drawn about the Gelidonya ship itself. This fragment was actually a tenon that was used in the joining of the hull planks through the use of mortise and tenon joints. A quick refresher on those joints, if you'll indulge me. We talked about mortise and tenon joints when we looked at the Khufu ship, and these are rooted in the same idea. The tenon serves as a connector between the hull planks that make up the outer shell of the hull, the strakes. If you picture the strakes as they would be situated on the ship, you can hopefully also picture the tenons and how the mortises would be cut. The strakes encircle the hull, stretching from the stem to the stern. In most representations that show the strakes, we can see the various levels of the strakes, the bottom level stacked all the way up to the gunwale. It's between the strakes that the mortise and tenon joints come into play. A mortise is a groove that's cut into the edges of a strake. So, a mortise is cut into the top edge of one strake and into the bottom edge of the strake above it. These mortises are cut at regular intervals along the edges of every strake, a small thin wooden tenon is inserted in the top edge of one strake, and the strake above it is lined up and hammered down into place, the tenons serving as support to strengthen the joining of the strakes and to keep them in place. The Khufu ship used unpegged tenons, but on the Gelidonya ship, the recovered tenon had a round hole, evidence that the shipbuilders used pegs to keep the mortise-and-tenon joints locked in place. This method is much more common in the ships of the Mediterranean, as opposed to the unpegged tenon method used by the early Egyptians. The pegs were simply inserted after the strakes were joined together. A hole would be drilled through the strake, passing through the mortise and tenon. Since a tenon would be half in the top of one strake and half in the bottom of the adjoining strake, two pegs were used, one in each end of each tenon, thereby keeping the strakes locked together. Even better, once the wood was gotten wet, early on in the ship's maiden voyage, it would swell and make these joints even stronger and impermeable. An ingenious system, certainly.



The cargo was almost exclusively in the form of copper ingots, the majority of them in the form of ox-hide ingots. They're called ox-hide ingots because of the way they look, fairly rough and hide-like, not to mention their shape, which is similar to the hide of an animal after it's removed. There are protrusions in each corner, made purposefully to aid in transporting the heavy ingots, they weight around 45 pounds a piece. These copper ingots are important, not just because they're a main ingredient in bronze production, but also because 27 of the ingots on the Gelidonya ship bore a foundry mark, revealing their origin as being the island of Cyprus. The ship also bore some ingots of tin, the other main ingredient in bronze. Beyond the raw commodities, the ship carried many baskets of broken bronze tools, some of them bearing signs of the island of Cyprus, again. It's surmised that the captain used these broken bronze tools as scrap, melting them down to make new tools, adding copper and tin as needed to strengthen the bronze.



The items on board then give us enough to surmise that the captain of the ship was likely a traveling metalsmith, able to make bronze tools or weapons to order. Since metal working requires fire, I think it's safe to say that he set up a rudimentary foundry ashore, so as not to inadvertently burn his means of transportation, but all the ingredients and tools necessary to do his work were found among the cargo of the Gelidonya wreck. The surprising thing about this wreck comes from few items that I didn't yet mention, the oil lamps and baskets that were among the other items. The lamps were of Syrian origin, and the baskets were made of material that came from the Levant, not to mention the further presence of some of the world's oldest knock-off merchandise, scarabs made to look like genuine Egyptian scarabs. They were actually produced in the Levant much for the same reason knock-off goods are produced today, to reach a market that couldn't afford the real thing.

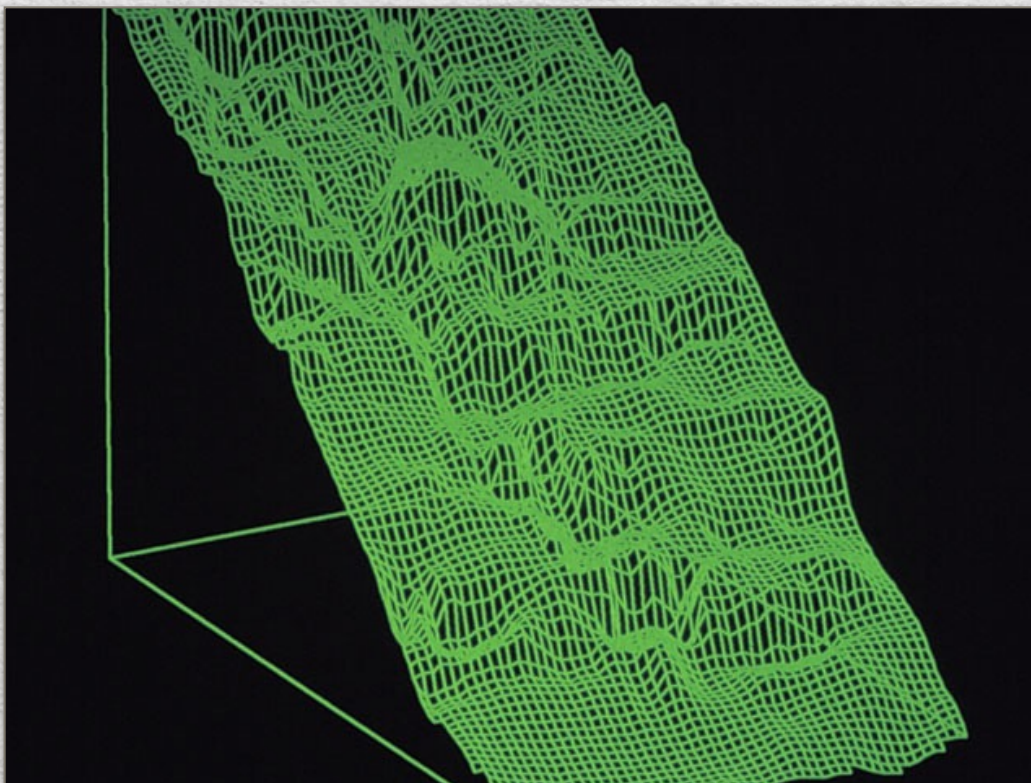
That covers most everything that was found at the wreck site, everything that George Bass would have been able to examine and study after he'd finished this earliest of nautical archaeology excavations. Bass published his findings in 1967, after studying the artifacts for several years, and his theory was met with fairly heavy skepticism at the time. He proposed that the ship had originated in Syria, or thereabouts in the Levant, that it had wrecked off Cape Gelidonya right around 1200 BCE, and that the maritime trade of the late Bronze Age was conducted just as much by these Near East "proto-Phoenecians" as it was by the Mycenaean people. At the time that Bass published his first findings, most archaeologists believed that there was no trade contact between the Levant and Bronze Age Greece, let alone the possibility that Canaanite merchants had the ability to sail the Mediterranean and conduct trade. The accepted view until Bass came along was that the Mycenaeans dominated the Mediterranean and that the presence of Greek-Mycenaean items around the Mediterranean coasts was thanks only to the Mycenaeans reach. Bass, however, purposed to find further evidence to corroborate his theory, and that's where the Uluburun shipwreck comes in.

As was the case with many Bronze Age shipwrecks found in the region, the Uluburun wreck was also originally discovered by a sponge diver who, thankfully, chose to report his discovery to archaeologists rather than plunder the sight himself. It's a bit depressing actually to think about how many ancient wrecks may have been lost over time because of chance discovery by unscrupulous persons, but let's not dwell on that thought today. Rather, let's look at what George Bass and his team were able to glean from the shipwreck at Uluburun and how has contributed to our view of the Bronze Age history of the Mediterranean.

Important right off for this wreck is to remind you that although it was discovered 20 years after the Gelidonya wreck, the Uluburun wreck has actually been dated to around 1305 BCE, making it at least 100 years older than the Gelidonya ship. We'll get into some of the reasons underlying the dating of the wreck as we talk about what the ship was carrying, but let's first look at just how difficult this wreck proved to be in terms of diving and study. The ship sank in relatively deep water, and the manner in which it came to rest on the bottom made matters worse. The stern of the ship rests 140 feet below the surface, the rest of the ship sloping even further down, the extremities at a depth of 170 feet. For my metric minded listeners, the wreck lies at a slope the midpoint of which is around the 50 meter deep mark.

The topography contour map of the site reveals a steep sea floor resting place for the ship, but even the most shallow part of the ship's grave is at a dangerous depth for scuba divers. In fact, the depth of the wreck is so deep that the divers who worked the wreck could only dive twice each day, the length of each dive restricted to 20 minutes. These time restrictions meant that working the wreck was tedious and prolonged beyond what a normal archaeological dive tended to be. Over the course of 11 dive seasons between 1984 and 1994, the team made 22,413 individual dives to the wreck site. In the end, their patience and diligent work paid off in spades.

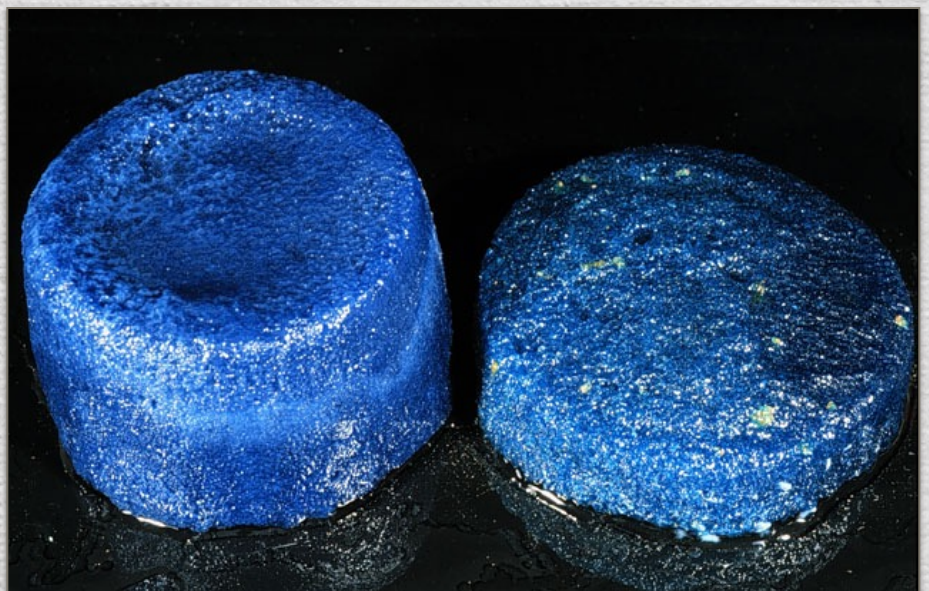
The items that had initially alerted the sponge diver's attention to the presence of something on the sea floor turned out to be ox-hide copper ingots similar to those of the Gelidonya wreck. There were over 350 copper ingots lying on the bottom of the sea, and as the divers began bringing them to the surface, they discovered that they had settled on the seabed as they had likely been kept in the ship, stacked in four rows and arranged in a herringbone fashion. The ingots themselves had degraded so much that the archaeologists devised an ingenious method of injecting a new type of glue into the ingots, a glue that took over a year to harden, but after it finally did harden would allow the ingots to be brought to the surface in one piece more or less. In addition to the 10 tons of copper ingots, which again came from Cyprus by the way, the wreck site yielded up one ton of tin ingots. The common ratio used in smelting bronze was 10 to 1 copper to tin, so it's intriguing that the Uluburun wreck contained those materials in the exact ratio.





So, the copper and tin ingots made up about half of the ship's total cargo, but it's the remaining half that is extremely remarkable, so much so that when the findings from the Uluburun wreck were ultimately published, they completely changed the way archaeologists viewed the Late Bronze Age trade of the eastern Mediterranean. Essentially, the Uluburun ship turned out to have been carrying goods from at least seven distinct states, or empires, whatever name you want to use to delineate the various Bronze Age cultures around the Mediterranean. When the ship went down, then, whoever held claim to the treasure trove of items aboard lost a veritable fortune.

Part of that fortune was in the form of 200 hundred ingots of raw glass, likely from Mesopotamia. A variety of colors were present: cobalt blue, some lighter turquoise, purple, and even a few of amber shade. These glass ingots are believed to be the oldest intact ingots of raw glass found to date, and they would have likely been quite expensive in their original context. Beyond the glass, "there was also a ton of terebinth resin contained in about 150 Canaanite jars. The resin was possibly used for incense, or the jars could have originally contained wine with the resin added to prevent the growth of bacteria." Some further pottery contained grapes, pomegranates, and figs, in addition to spices like coriander and sumac. There were two dozen logs of ebony from Nubia. A large selection of brand new pottery from Canaan and from Cyprus was also present. Ostrich egg shells used as containers and tortoise shells for use as musical instrument soundboxes were also recovered, and lest you think that's even near the end, let me just launch into this list from Cline's book about 1177 B.C.: "scarabs from Egypt and cylinder seals from elsewhere in the Near East; swords and daggers from Italy and Greece, including one with an inlaid hilt of ebony and ivory; even a stone scepter-mace from the Balkans. There was also gold jewelry, including pendants, and a gold chalice; duck-shaped ivory cosmetic containers; copper, bronze, and tin bowls and other vessels; 24 stone anchors; 14 pieces of hippopotamus ivory and one elephant tusk; and a six-inch-tall statue of a Canaanite deity made of bronze overlaid with gold in places," which Cline notes did a poor job if it was intended to serve as the ship's protective deity.





Another interesting and unique item from the wreck is a diptych book that was recovered in pieces but was reassembled as far as was possible. The reassembled artifact shows us that the ship carried a pair of writing tablets that were joined in the center by two ivory hinges, forming a diptych that could be opened and closed, essentially a two-page ancient book. The inside of each tablet contained a rectangular depression that would have been filled with beeswax, giving scribe a book in which to inscribe temporary notes or records, perhaps an itinerary or cargo manifest. The wax succumbed to the the elements present in the ship's watery grave, so we don't have any idea what the ship's record keeper would have written on this very old book-of-sorts, but it's quite interesting to note that this diptych is over 500 years older than similar writing tablets that have been found at sites in Iraq, and that it's likely this sort of diptych-tablet that Homer referenced in the Iliad. In Book 6 of the Iliad, the battle is in full swing and Hector receives advice from a seer that he would do well to return to Troy and arrange for the queen and other women to make offerings in the temple. Hector returns to the city and does so, and at this point there is a lull in the battle. Diomedes, an Achaean, and Glaukos, a Lycian ally of Troy, meet one another in the field between armies, intending to do personal combat. Being Greek myth, they couldn't just start fighting, they first had to taunt one another and learn a bit about the guy they were about to fight, which, conveniently for us as the reader, gives us some insight into the two men's family histories. It'd be needlessly confusing to explain that all here, so let's just say that in giving his family history, Glaukos tells how his granddad, Bellerophon, was in the court of the Mycenaean king Proteus for some reason or another. King Proteus' wife took a liking to Bellerophon, but when he rebuffed her attempts to seduce him, she lied to her husband, accusing Bellerophon of attempted rape. It's bad press to kill a guest, so the king sent

Bellerophon to visit the king's father-in-law, the rebuffed queen's father. My version of the Iliad then puts it this way: "And grievous credentials he gave the young man to take with him, A folded tablet wherein lord Proteus had written many baneful signs, which he bade Bellerophon show to the Lycian king, who would then contrive his death."



The rest is history, or, well, mythology I should say. The king figured that he'd just tell Bellerophon to kill a nasty beast that had terrorized the nearby countryside, and that Bellerophon would be slain. That beast was the Chimera, but Bellerophon captured the Pegasus and slew the Chimera, proceeding then to fulfill every quest the king sent his way. A bit of a rabbit trail, but these myths are great, especially when they tie directly to something concrete, in this case, the diptych from the Uluburun wreck. Until the diptych was reassembled and the Uluburun wreck was dated, historians had steadfastly maintained that Homer's reference to the folded tablet with baneful signs was a mistake, that he was importing something from his own time, the 8th century BCE, into the supposed historical tale of the Trojan War, which had purportedly occurred over 400 years previous. The discovery of this diptych writing tablet at Uluburun, then, proved Homer's Iliad correct, showing that such tablets existed even before the time of the Trojan War.

Getting back to the Uluburun wreck now, as for the hull of the ship itself, only 2 meters of the hull have been exposed, but those 2 meters have proved revealing enough that we know the ship was built of Lebanese cedar and that the hull was constructed using the same pegged mortise-and-tenon joining method that we discussed earlier in relation to the Gelidonya wreck, though its presence here makes the Uluburun ship the oldest to have used this method. Estimates based on the cargo and on the spacing between the mortises on the hull have led archaeologists to view the Uluburun wreck as probably being 50 feet long.



The wealth of artifacts can be traced to at least seven distinct cultures, as I said previously: those 7 are the Mycenaean, Syro-Palestinian (the 'proto-Phoenecians'), Cypriot, Egyptian, Kassite, Assyrian and Nubian. I'll post a map showing the location of the wreck as well as where the various goods the ship was carrying would have originated. The map isn't the greatest resolution, but it still helps give a visual idea about just how far the various goods traveled before ending up in a heap at the bottom of the Mediterranean sea. The wealth that the Uluburun ship was carrying is astounding, and a clear sign of the international nature of Late Bronze Age trade. Because many of the personal items found, items that would have been kept by the ship's crew, were those of a Canaanite provenance, the accepted view is that the ship originated in the Levant and was en route to a Mycenaean port on mainland Greece, or, perhaps, on Crete. There are other plausible possibilities, such as the possibility that it was a diplomatic gift rather than a commercial venture, but proof of one nature or the other is lacking. Either way, the ship and its cargo can easily be viewed as a microcosmic picture of the state of trade and intercultural relations in the Late Bronze Age. It wasn't only the Mycenaeans that made the rounds after all, though looking back on past theories from today's vantage point, we can easily see that they were a bit narrow-minded. I'm sure that future historians will be saying the same about some of the theories we bandy about, as well.

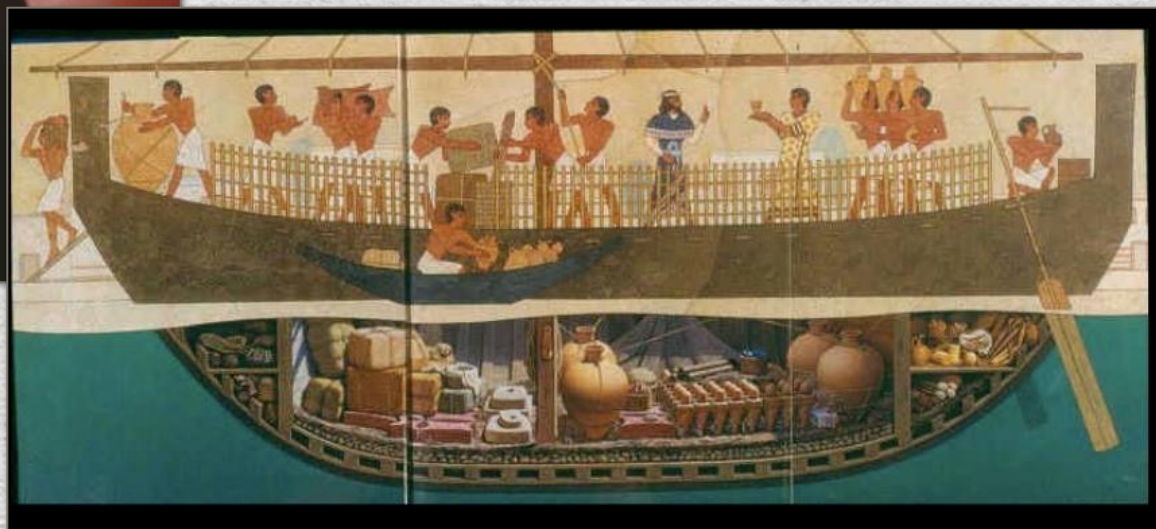
For all the glamour of the Uluburun ship's hoard, and for all the difference it and the Gelidonya wreck made to our view of Late Bronze Age trade, I find it fitting that one of the smallest objects recovered from the Uluburun wreck proved to be one of the most important. The object was an Egyptian scarab, and no, it wasn't a knock-off like the ones from the Gelidonya wreck, it was a genuine, solid gold Egyptian scarab. These are fairly rare finds to be going with, but the inscription on this specific scarab made it extremely rare and extremely useful in properly dating the wreck itself. You see, the scarab was inscribed with the cartouche of Nefertiti, the wife of Akhenaten, the pharaoh who attempted to pare the pantheon of Egyptian deities back to only one, Aten. Anyway, Nefertiti was second only to the pharaoh, perhaps even a co-regent at one point, and for only 5 years she spelled her name in a specific manner, abandoning that spelling after Akhenaten got more serious about his Aten religion. The short lived spelling of Nefertiti's name, "Nefer-neferu-aten" is indeed how it was spelled on the Uluburun wreck's scarab, so archaeologists know that the ship could not have sailed before Nefertiti came to power, around the year 1350 BCE. The scarab date, combined with dendrochronology on the hull's wooden beams, dating of the Mycenaean pottery from the wreck, and even a radiocarbon dating on some of the twigs and branches that were used to line the ship's deck, all add up to a date within a few years of 1300 BCE.

That does it for our look at these two important shipwrecks from the Late Bronze Age. We haven't really yet looked at the wider context of the Mediterranean or the Near East into the stage of the Bronze Age to which these wrecks both belong. The Amarna letters from around 1350 BCE show that things were beginning to unravel, and the wealth of the Uluburun wreck tells us that despite the start of turmoil, wealth still flowed rather freely. Between 1300 and 1200 the situation changed rather drastically, and I plan to look at this period next time. There's so much to talk about with this period and it gets so complex that I anticipate being in this timeframe for a while. There are issues of the Trojan War, it's historicity, but also issues of how the Sea People's began to emerge, where they came from, and how the powers that were then in place reacted to the Sea Peoples. I've been surprised to find out just how much archaeological evidence there is to back some of this discussion, so I hope that by the end of our discussion of the Late Bronze Age Collapse you feel like the theories that we'll discuss might have some credence.



The Uluburun wreck's golden Egyptian scarab, bearing the cartouche of Nefertiti.

A cutaway illustration of what the Uluburun ship may have looked like when fully laden with cargo.



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