

# *The Oldest Wreck in the World* **Uluburun**

Text by Rico Besserdich.  
Images courtesy of the Museum of Underwater Archeology in Bodrum and the "360 derece" research group in Turkey

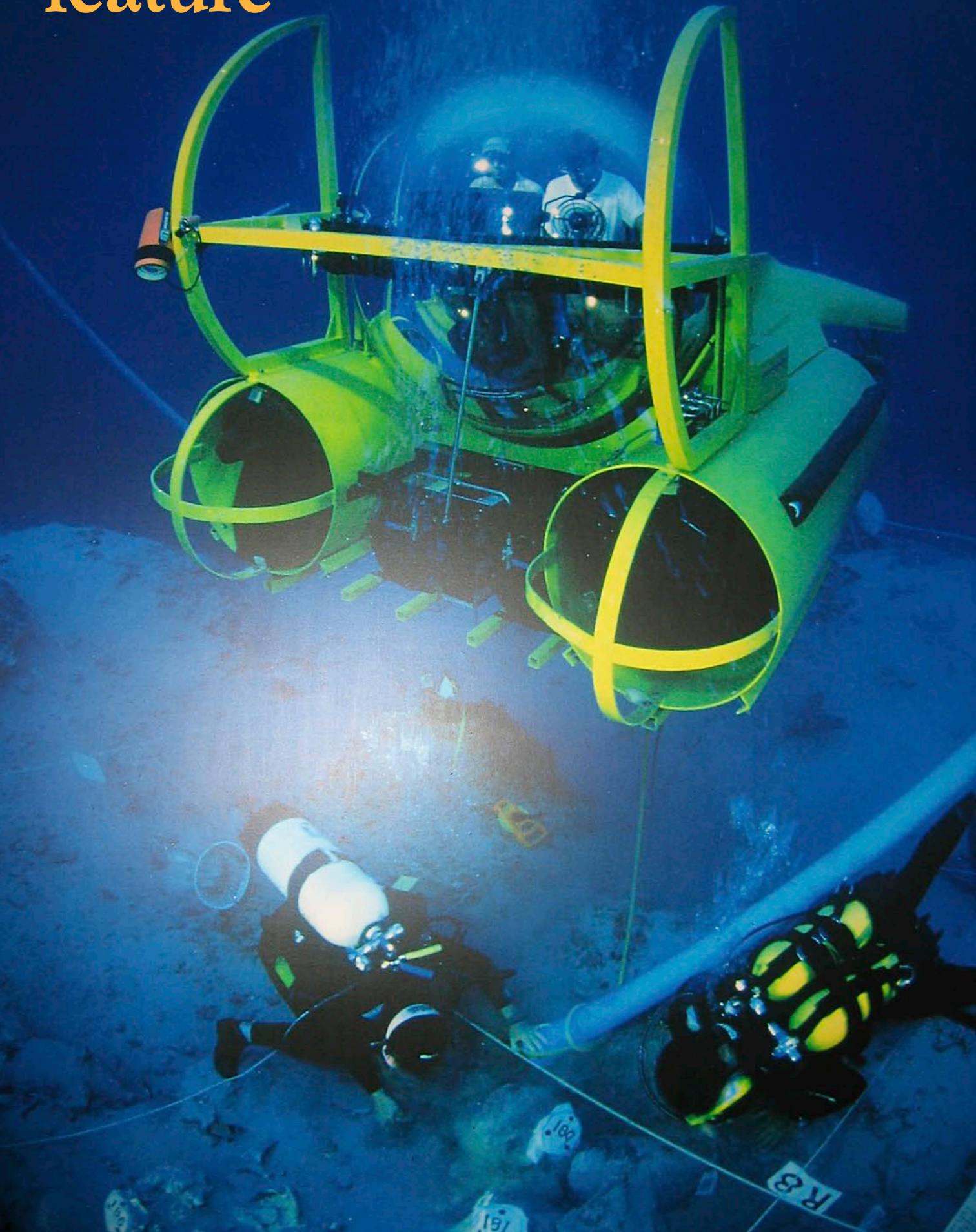
**1300 BC—A merchant ship, laden with treasures from seven different cultures and commodities of Cypriot origin was traveling on a 1,700-mile trade route when it sank for unknown reasons at Cape Uluburun (near Kas on the south coast of the Antalya region of Turkey). Much knowledge about prehistoric trade and nautical navigation during the late Bronze Age, including secrets that could rewrite the whole story, began a sleep on the sea floor—a 3,300-year-long sleep.**

1982 AD—A Turkish sponge diver discovered the remains of the wreck. This triggered euphoria among archaeologists around the world, and the later recovery and analysis of the findings definitively established underwater archeology as a serious science. Science was able to answer 1000-year-old questions, driving traditional analysts into desperation and changing the existing historic world view substantially.

Named after the place where it was discovered (Cape Uluburun), the *Uluburun* is the oldest known shipwreck in the world and a finding of superlatives. She brought answers to many questions, but she also introduced many new mysteries

A 1:1 replica of the *Uluburun*, built with the use of Bronze Age materials and craftsmanship, sails the Mediterranean Sea. Image provided by the "360 derece" research group, Turkey





Submersible *Carolyn* (left) of the U.S. Institute of Nautical Archeology at excavation site of *Uluburun* shipwreck and camp of the archeologists (right) during the ten-year period of excavations, Cape Uluburun, Turkey

that science has yet to explain, even today.

## The Bronze Age

The *Uluburun* sank during the so-called Late Bronze Age. The Bronze Age—it sounds terribly old, doesn't it? Indeed it is! It was a time when the invention of the wheel was as remarkable as the invention of social networking is today.

The Bronze Age in itself was the successor to the Stone Age and the predecessor to the Iron Age. It lasted from about 2200 to 800 BC, but did not occur everywhere at once, because different cultures experienced different stages of development in terms of bronze. We are talking here about a general and broad time window.

The namesake of this period

was the metal alloy bronze, which comprises 90% copper and 10% tin. The use and processing of metals was already known to humanity, but it was limited to sterling metals (naturally occurring pure metals), such as gold, silver and copper.

The “invention” (mainly in Europe and the Middle East) of humanity's first alloy (which was much harder than copper) triggered a worldwide change with lasting consequences.

We could say the last trip of the *Uluburun* was in some way a consequence of these changes.

Along with the invention of bronze, the necessity to organize a “metallurgy chain” became apparent. Production needed tin, which was rare and not available everywhere. The appropriate logistics became essential.

With bronze, it became possible to accumulate wealth that was easy to transport; Bronze ingots were a common payment currency of the time, and where there is wealth, conflicts arise. The simultaneous emergence of heavily fortified settlements and the invention of the sword shows that our ancestors experienced troubles with jealous neighbors who tried to get their “undeserved” share.

Bronze also caused a serious upheaval in the social structure. The access to, and control of, resources (such as metals, metallurgy, communications and trade routes) resulted in the emergence of an upper social class and induced differentiation among people, the consequences of which we still feel



Archeologists working on first excavated findings

## Uluburun



Replica of the *Uluburun* (right and left)—how the finding looked underwater; Excavation works (below). Images taken with special permission at the Museum of Underwater Archeology, Bodrum, Turkey

and transport at the time.

However, a fine structural difference with the *Uluburun* is that its pegs were not secured by wooden pins. This technique would later be called “Fenike-mortising” by the Romans. The *Uluburun* was certainly built for use at sea, which refutes the thesis that sailing in the Bronze Age was done exclusively within sight of the coast.

Because only about three percent of the ship’s original hull was recovered, drawings from ancient Egypt, specifically the pictorial representation of the “fleet of Queen Hatshepsut in the land of Punt” (1500 BC), provided a significant visual reference for reconstructing the ship. After extensive research, we now know:

- The *Uluburun* was 15 meters long, 5 meters wide and had a draft of 1.4 meters. Her cargo is estimated to have been 20 tons. The width of the ship’s trim was 6cm, and the pegs were at a distance of 20cm.
- The ship used a triangular sail, which provided a maximum speed of two nautical miles per hour, and two rudders to maneuver.
- The Turkish research group “360” proved this ship was oceangoing in 2005. By using techniques and materials from the late Bronze Age only, the “360” group built an identical replica of *Uluburun* and successfully sailed the Mediterranean.

The following is the probable route of the *Uluburun*. From her home port on the Levantine coast, she sailed fully loaded to her (unknown) Mycenaean destination port. At night, she anchored in ports along the Turkish coast. The planned way back may have then taken her towards Marsa Matruh in northwest

even today.

The geographically uneven distribution of metal deposits (particularly tin) resulted in a far-reaching and almost global trading network that also spread cultural ideas in addition to goods. Bronze was essentially pioneering the cross-border communication of knowledge between cultures. Even today, good ol’ bronze has an essential word to say in the world of digital communication: No computer works without the elements of bronze. No bronze would mean no online social networks.

While our *Uluburun* sailed the seas, the world-famous bust of Nefertiti was made in Egypt. Odysseus returned home from his long odyssey. The Egyptian Pharaoh Echnaton established the first monotheistic religion. Moses’ successor Joshua led the Israelites, and the Hittites dominated an area five times larger than Germany. These were turbulent times—from Haithabu to Karnak, as well as at Cape Uluburun on the southern Turkish coast, where a merchant ship with a cargo of priceless goods sank to its grave.

### The Ship

The ship was built of cedar using the so-called “spigot technique,” which involves building the outer hull first and adding the



underlying “skeleton” (the frames and bars) later. Even 1,000 years after the demise of the *Uluburun*, this technique was still used to build Roman and Greek ships.

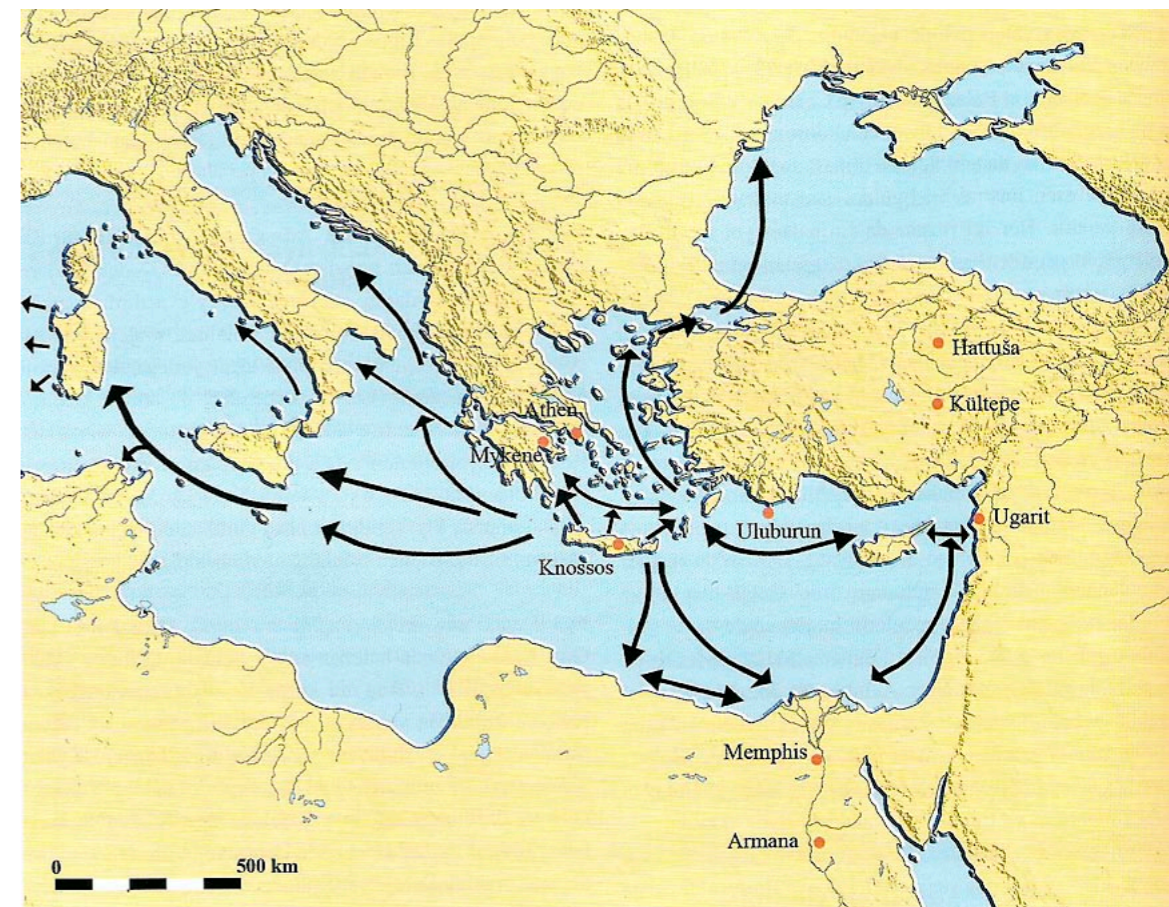
Archaeological finds in Egypt suggest that the archetype for this ship probably came from ancient Egypt. In particular, Pharaoh Echnaton drove the development of more resilient oceangoing ships to advance trade





Amphorae—Ancient cargo storage. Image taken with special permission at Museum of Underwater Archeology, Bodrum, Turkey

Trading routes of bronze during the late bronze age



common way to transport metal at that time, making carrying and securing the precious resource on pack animals and ships easier.

News of this discovery brought the Turkish archaeologist Cemal Pulak M. on the scene. Cemal was at that time an assistant to George F. Bass, the founder and director of the Institute of Nautical Archaeology (INA) in Texas, USA. After checking the “biscuit with ears” description, Pulak also dived at the site to see the ingots and also noticed several amphorae and ancient stone anchors. He initiated, together with George Bass, one of archeology’s most complex excavation projects at the time.

The discovery of the *Uluburun* was, and still is, regarded as a major discovery of the century, and neither means nor effort has been spared to finally obtain answers to so many unanswered questions about the late Bronze Age. The archaeological significance of *Uluburun* is compared with the grave of Pharaoh Tutankhamen. Two years after the discovery, the excavation was initiated.

As technical capabilities and know-how in Turkey were limited at the time, George F. Bass (known as the “father of underwater archeology”) provided extensive support and technology on behalf of INA.

INA sent its own research vessel,

the *Virazon*, to Turkey. The *Virazon* was equipped with a decompression chamber, side sonar, a proton-Magnometer, a compressor, an echo sounder, GPS, underwater scooters and a two-person submarine, *Carolyn*. It was the best that money could buy at the time.

On the rocks of Cape Uluburun, only 50 meters from the wreck’s location, a mobile village was built on stilts where the Turkish–American team of archaeologists experienced a veritable Robinson-Crusoe-style life far from civilization. During the ten years of excavation operations (1984–1994), archaeologists lived three months every year on a windy cliff, miles from the nearest village. In this solitude, George Bass and his wife, Ann, even spent their honeymoon.

Yasar Yildiz, now director of the Underwater Archaeology Museum in Bodrum, was actively involved as an archaeological diver in *Uluburun*’s excavation. Yildiz found a gold medallion of Egyptian origin at about 45 meters deep. He was also present during the salvage of the very first artifact in 1982. The wreck’s excavation comprised 22,413 dives over 6,613 diving hours at

depths between 44 and 61 meters (134 to 210 feet).

Dives at the wreck were done “barefoot” (without fins) to protect the artifacts and avoid disturbing the sediment as much as possible. TriMix was already around, but at the time, it was reserved solely for military use, so all dives were made with standard air, usually with double 12- or 15-liter tanks.

The data from each dive was recorded manually, not only to monitor the recovery, but also to ensure the safety of the divers. Each diver had a limited bottom time and mandatory surface breaks. The staff responsible for dive safety had a tricky job keeping enthusiastic archaeologists safe.

After mapping the wreck and its artifacts, each diver was assigned a grid square for which he was responsible. Recovery occurred only after surveying and documenting everything. Major findings were salvaged using lifting bags, while smaller

Egypt. The currents and winds in the area suggest such a route, as the *Uluburun* was unable to cross winds due to her simple sail.

## Discovery and rescue

—Coordinates 36 ° 7 ' 43 "N, 29 ° 41' 9" E. A Turkish sponge diver named Mehmet Çakir was the official discoverer. In 1982, while

diving for sponges, he noticed an “odd structure” at a depth of 45 meters. He described it in his own words as “looking like a metal biscuit with ears”. It turned out that these “ear cookies” were oxhide ingots, which are ancient plates of raw copper with a shape reminiscent of dried ox hides. Oxhide ingots were a



Author Rico Besserlich and Yasar Yildiz, who was one of the archeological divers during the excavation of the *Uluburun* and who is today the director of the Underwater Archeology Museum in Bodrum, Turkey

The oldest ship logbook in the world. All images this page taken with special permission at the Museum of Underwater Archeology, Bodrum, Turkey



Gold findings; Golden amulet showing Egyptian pharaoh Nefertiti (right)

artifacts were transported by the archaeological divers to the light of surface.

A total of 18,000 artifacts were recovered, some fully preserved and others fragmented. According to INA, after three months of excavation work underwater, two years of scientific work for the restoration, preservation and determination were needed. A total of 30 months underwater work resulted in 20 years of scientific

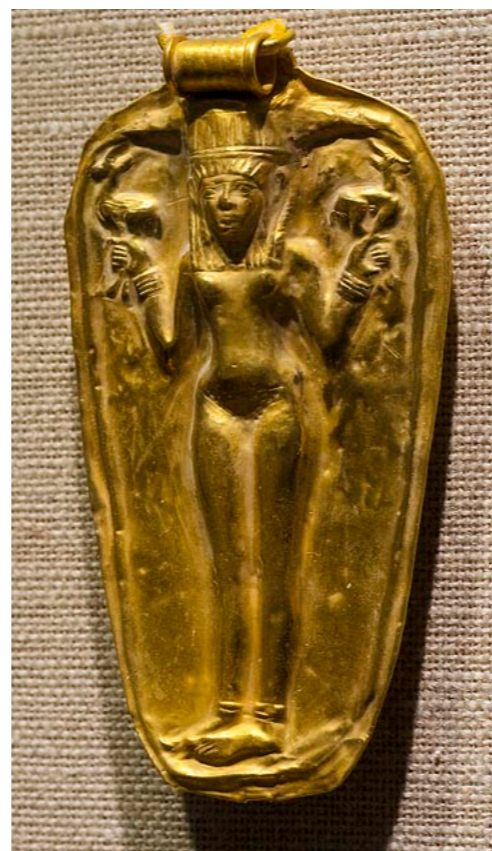
and archaeological reworking. Although the excavation was completed in 1994, the follow-up work still continues today. After 3,300 years rest on the sea floor, the *Uluburun* will not give up her secrets in a "short time" of just 20 years.

**Treasures of Uluburun**

The cargo of the *Uluburun* contained artifacts from seven different cultures: Mycenae, Kenan, Cyprus, Egypt, Kessiten,



Assyria and Nubia. This diversity of the various trade goods from different countries demonstrated how a very brisk trade took place over the sea 3,300 years ago. It is speculated that the *Uluburun* was a royal ship or of royal commission, but this cannot be proven.



The main cargo was ten tons of copper of Cypriot origin, divided into 354 oxhide ingots. There was also a ton of tin stored in 150 jars of Canaanite origin. Prior to this discovery, it was unknown to science how tin was transported at the time.

Part of the cargo was 175 glass ingots of various colors. Assuming that glass production had just been invented in Egypt, the glass items alone must have been priceless at the time.

Egyptian ebony, several ostrich eggs, elephant tusks, more than a dozen hippopotamus teeth and various processed turtle shells were almost certainly intended as an ensemble for early stringed instruments.

Also present were Cypriot ceramics, a huge amphora (130cm high) bearing the seal of Nefertiti, pomegranates and olive oil, gold jewelry, spices, 149 trade weights in the form of animals, cosmetic containers made of ivory in duck form, arrowheads, bronze swords and spears, oil lamps, a small bronze sculpture of the goddess Astarte (probably a

of personal use, such as fishing equipment, blades, needles for repairing fishing nets and typical boating features in the form of 24-stone anchors (two actually used as anchors, and the rest probably used as ballast).

The *Uluburun* carried the finest goods from the advanced civilizations of the Mediterranean. Its sinking must have hit its owner (or his client) hard financially.

If we measure the value of the ship's cargo by today's standards, we could imagine a 200-meter freighter loaded with 250 Ferrari 612 Scagliettis, 100 Hasselblad H4D medium-format digital cameras, two or three paintings by Da Vinci, 500

lucky charm), hundreds of other ornaments (made from glass, cobalt, gold, bronze and electron), amber, pearls, and a gold scarab with the cartouche (name seal) of the Egyptian Queen Nefertiti.

In addition, there were many articles

Rolex Yacht Master watches, 100 bottles of Mouton Rothschild (1945) and 100 bottles of perfume No. 1—Imperial Majesty Edition by Clive Christian (which goes for 250,000 AUD per bottle). Its sinking would cost the owners 275 million Euros (about 349 million AUD) and drive them into the deepest depression.

Many artifacts found threw up a new mystery. It was assumed at the time of the *Uluburun* pharaoh that Nefertiti was already dead, and the new Pharaoh Haremhab had left no stone unturned to eliminate all evidence of the existence of Nefertiti and her husband Akhenaton. Nevertheless, a golden scarab and



"Metal cookie with ears" —Bronze ingot



Golden statue of the goddess Anastarte

several sealed jars were found with her name on them. An unaccredited but persuasive argument suggests that the name of the great pharaoh, even after her death, was still a great force of protection, and therefore her name was used to protect the merchandise.

Similarly, two high-quality swords and ceremonial sticks indicate the presence of at least two high-ranking passengers, possibly of Mycenaean origin, possibly a royal emissary?

to look at chaos. The structure would not be recognizable to a layman as a shipwreck, and even the copper cargo seems at first glance more like a pile of scrap metal ("metal biscuits with ears"). Only through persistent and extremely careful archaeological and scientific work could salvaged treasures and secrets be revealed.

Three percent of the original hull had been preserved, which we lay people would not even have recognized as timber. Nevertheless, these wood

## Age determination

We have to distance ourselves from the romantic notion that an aging shipwreck stays stylish and decorative, or that it waits in its entirety on the ocean floor for our discovery. Looking at the *Uluburun* initially was

residues made determining the age of the wreck possible at all. For this purpose, dendrochronology—from the Greek dendron (meaning tree), chronos (time), and logos (science)—was used to assign the pattern of the annual tree-rings (based on their different widths) to a particular known growth time. This of course also works on wood already in processed form (planks). The findings sparked controversy at the end, with fluctuations of plus or minus 200 years in determining the age of the *Uluburun*.

The dendrochronological analysis of the wood (the remains of the hull and extra firewood the sailors carried) showed a date of 1306 BC. It may have been two to three years later that the *Uluburun* sank, but the ship itself may have been even older. The generally accepted estimate is 1323 BC.

## History is rewritten

"The *Uluburun* writes the story in a roundabout way," said Cemal Pulak, field director of the Institute of Nautical Archaeology (INA) in Texas. "So far, we

considered Greece to be the cradle of modern civilization, the glorious Bronze Age Greeks. The Mycenaeans were seen as paving the way for almost everything that our society makes: our thinking, our political actions, and even our lives. Now we have the first evidence of an overwhelming influence from the East."

The sailors of the *Uluburun* were not Mycenaeans, but Canaanites, ancestors of the Phoenician Semithischen. This little-known people developed the first long-



Bronze Age farming tools. All Image this page taken with special permission at Museum of Underwater Archeology, Bodrum, Turkey

# Uluburun

distance trade over sea. The discovery of amber from the Baltic Sea area in the *Uluburun* wreck shows the extensive reach of the trading network.

"This ship is the king," wrote the Minister of Alaschija (Cyprus) as agent of Egypt. This correspondence is known as the "Amarna letters". In 1887, clay tablets were found showing the active exchange between the Egyptian court and foreign kings. Was the "ship of the King" meant to mean the *Uluburun*?

"I will bring you a gift of two hundred talents of copper," the king wrote to the Egyptian Pharaoh of Alaschija. Was this the *Uluburun*'s primary mission?

Before the discovery of the *Uluburun*, it was unclear how much a "talent" (an ancient unit of weight) actually was. The 354 copper ingots found brought light onto the matter; Each ingot weighed 27–28kg, and the cargo of approximately ten tons of copper corresponded closely to the amount of 200 talents. It is clearly evident that 3,300 years ago, an early "DIN standard" aimed to define a talent as 28kg. Two hundred talents was enough



Golden amulett

Findings from the Uluburun: Oil lamps.  
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were only found in royal courts. There were at least three literate dealers on board, which

was proven by the discovery of a wooden diptych, a double panel of boxwood with ivory hinges. This diptych is the earliest notebook known in human history. Text was written on wax tablets, but they

of classical archeology. Now, 3,300 years after her demise and 29 years after her discovery, the *Uluburun* is still a mystery that keeps the world of archeology in suspense, even



to equip a small army. Sufficient metal for 5,000 spearheads, 5,000 helmets, 5,000 swords, and 5,000 sets of armor. This was a truly royal gift, and the basis of the "Amarna letters" increases the likelihood of this being the mission of the *Uluburun*.

George Bass was in his early days often derided, because back in the 60's, he promoted the theory that the people of Canaan were influential in terms of navigation, commerce and industry, and that they were far more influential than the Mycenaeans. With the discovery of the *Uluburun* and its findings, the laughter stopped. Bass said, "Fortunately, this shipwreck surfaced during my lifetime."

This vessel contained the

largest ever collection of raw materials found. Other finds in the Mediterranean area consisted mostly of already processed materials, often of Mycenaean craftsmanship. The *Uluburun* proves the powerful Mycenaeans of the Kanaanärn were in some way dependent on others. A far-reaching consequence was, among others, that the work of Homer, including his *Iliad* had to be re-dated. He was previously thought to have lived in the Iron Age, but the events of the *Iliad* are now clearly Bronze Age.

The precious gifts of the *Uluburun* were so ostentatious that these were probably intended as additional gifts for a royal house. Also, the skills to craft ebony (which was also part of the cargo)



Skull decorated with gold; Jewellery from the Uluburun (top right)

have unfortunately not survived the thousands of years.

It is believed that a battleship would take a more direct route from A to B, rather than trading goods and commodities in different ports like you would expect from a merchant ship. However, this would only apply if the Amarna letters actually referred to the *Uluburun*. Finally, we know it, but it seems questionable whether a direct relationship would ever prove the crux

if what they have revealed so far is phenomenal! The exhibits and a full-size replica of the ship *Uluburun* are displayed in the Museum of Underwater Archaeology in Bodrum, Turkey.

Our only consolation is this: After our freighter with our beloved (and expensive) Mouton Rothschild 1954 wine bottles has sunk, we inform our insurance company quickly by e-mail from our computers, with bronze (the bringer of all evil or all joy—who knows?) ensuring a clean data transmission. ■

*Rico Besserlich is a widely published dive writer and underwater photographer based in Izmir, Turkey. For more information, see: [Maviphoto.com](http://Maviphoto.com)*