PROCEEDINGS OF SCIENCE

The Antikythera shipwreck and the treasures

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In the Easter of 1900 the first ancient shipwreck to be located and seriously excavated was found by chance, off the eastern coast of the tiny island of Antikythera, by sponge-fishers from the island of Syme in Dodecanese. During the underwater research the same sponge-fishers retrieved bronze and marble sculpture, mainly statues and statuettes, a large amount of pottery, at least 23 amphorae come mainly from Rhodes, Kos, Ephesos and from the coast of the Adriatic Sea, a quantity of fine plates of various sizes and cups, golden jewellery, luxury glass and silver vases, bronze fragments of furniture, the Mechanism fragments in one piece, wooden parts of the ship and other small antiquities. The cargo of the ship dates from the 4th to the 1st c. B.C. The Antikythera ship was a freighter (Gr. Ολκάς) of about 300 tons capacity. Three hundred and seventy eight (378) ancient works of art and coins highlight the great importance and wealth of its cargo. Also the great number of sculptures and vases and other cargo not raised, aboard the ship is an important factor in determining its type and function and possibly why it sank. The ship sank around the mid 1st c. B.C (70- 50 B.C), a period during which maritime trade and transportation of works of Greek art from the Eastern Mediterranean to Italy flourished..

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1. Introduction

The first ancient shipwreck to be located and seriously excavated was found by chance off the northeastern coast of the tiny island of Antikythera, south of Peloponnese between the islands of Kythera and Crete. The recovered objects, a real treasure, were brought back to the mainland, deposited in the National Archaeological Museum of Athens, where they are still preserved, while the most important are exhibited. Many of the finds are presented in their context for the first time in the exciting temporary exhibition of the National Archaeological Museum dedicated to the Antikythera shipwreck.

2. The findings of the shipwreck and the recovery of its cargo

The story is well known. In 1900, two ships with sponge fishermen from the island of Syme, in Dodecanese, because of the bad weather they dropped anchor on the northeast cost of the rocky island of Antikythera, near the harbour Potamos (Fig.1). This channel between the islands of Kythera and Crete was in ancient times one of chief shipping routes connecting the Eastern and the Western Mediterranean, but it is also an extremely dangerous territory for the ships due to sudden currents.

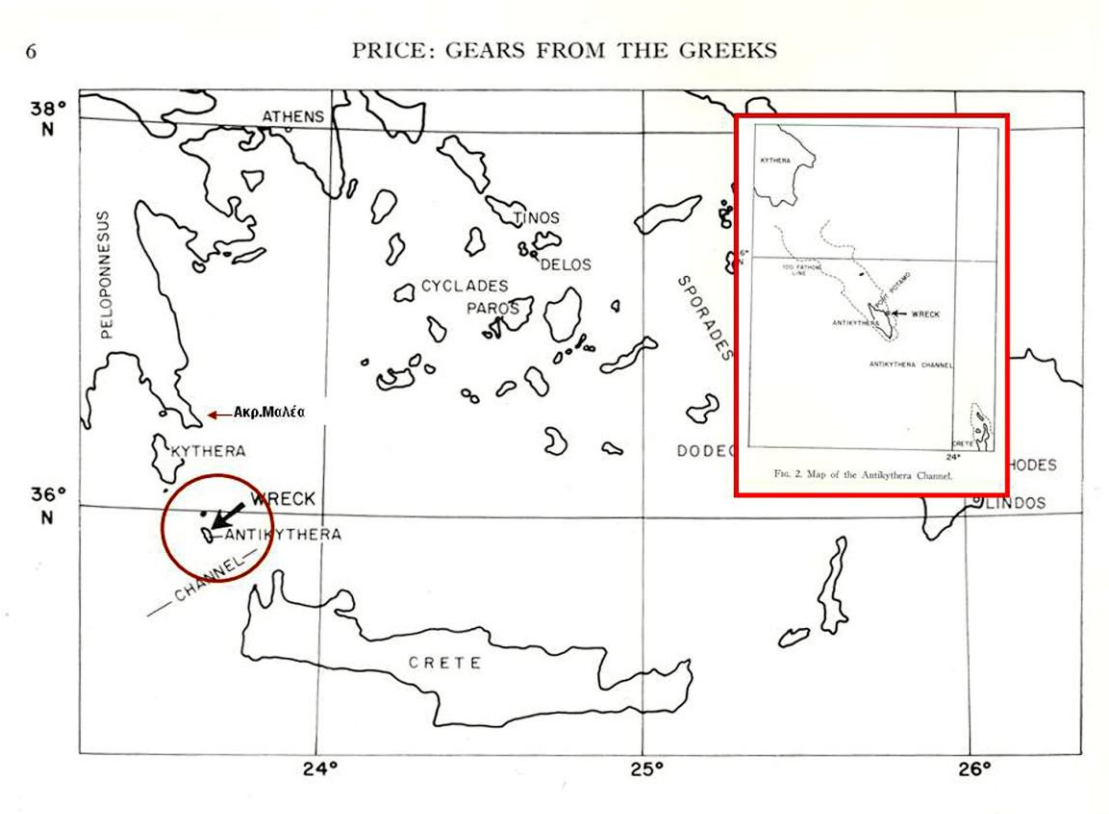

Fig.1 Map of the Aegean Islands and of the Antikythera Channel.

When the weather improved, one of the divers decided to explore the area in the hope of finding sponges. However, at a depth of about 50 meters and at a distance of 25 meters from the coast, he located a very important ancient shipwreck. So, he returned from the sea not with sponges but with the arm of a bronze statue[1] and he told of more treasure below (Fig.2).The statue is a portrait of an elderly, bearded man whose individual features are realistically depicted. The eyes were inlaid and the eyeball were originally of a white material, perhaps alabaster or magnesite. It has been proposed that the head depicted the Athenian Cynic Antisthenes, Diogenes` teacher or the famous philosopher Bion the Borysthenite. It is evident that the arm was detached from the statue earlier, because as we know the head, the arms and the legs of the statues were cast separately and after they attached to the body. Fragments of arms from other similarly-sized bronze statues, in gestures comparable to that of "the Philosopher" as well as of legs wearing identical leather sandals, have lend the conclusion that these belonged to a group of honorary statues of philosophers, orators, or public officials, set up in a public place.

Investigation of the shipwreck of Antikythera inaugurated underwater archaeology; it also offered a new and invaluable insight into ancient Greek technology. The difficult task of recovering the objects was carried out under very adverse conditions despite the help of the three ships of the Greek Royal Navy and of the Greek government. The operation lasted ten months, until the end of September 1901. By then one of the divers had died and two permanently disabled by their work.

During the underwater research the same sponge-fishers retrieved bronze and marble sculpture, mainly statues and statuettes, a large amount of pottery, a quantity of fine plates of different sizes and cups, at least 23 amphorae come mainly from Rhodes, Kos, important wine producing areas as well as from Ephesos (Nikandros Group) and from the coast of the Adriatic Sea (Lambolia 2 type) [2]. They were probably part of the ship`s cargo and they were mainly used for the transport of liquids such as wine, drinking water and olive oil, but also possibly for solids, such as salted products. Also, golden jewellery, luxury glass and silver vases, bronze decorative parts of couches, the Mechanism fragments in one piece, wooden parts of the ship and other small antiquities. All the finds recovered from the shipwreck bear witness to the aesthetic preferences of their orders or potential purchases but, they also reflect the new phenomenon of art trade, the first in the history of the West civilization. The rich cargo of the ship dates from the 4th to the 1st c. B.C.

2.1 The Antikythera Youth

The oldest find of the shipwreck is the famous bronze statue of a youth (Fig. 3) collected in five fragments[3]. The Greek sculptor Kaloudis made the first restoration of the statue in 1901. In 1902 the French sculptor André[4], invited to Greece for this purpose, rejoined the fragments and made numerous restorations with the aid of metal plates. The result was only partially satisfactory. In 1948 the statue was taken apart and reassembled by a team of specialists. The work beginning from 1952 and continuing until 1953, was conducted under the supervision and guidance of the National Museum `s-then Director, C. Karousos.

The young nude male is standing in a frontal position, turning his head strongly to right, but he does not focus his gaze on the object once held in the right hand. The figure has been identified as "Literate" Hermes holding a caduceus, as Hercules holding a club, as an athlete holding his prize and as funeral statue. According to the two dominant views the figure has been

Fig. 2 The portrait head of a Cynic philosopher. About 230 BC.

Fig. 3 The Antikythera youth.340-330 BC.

identified as the Argive hero Perseus displaying in his right hand the head of the Gorgon Medusa grasping her by the hair and in the other hand the sickle (harpe) with which he beheaded her or more probably as the Trojan hero Paris holding the Apple of Discord in his extended right hand, to award to Aphrodite and in the left the bow with which he killed

Achilles. The support pattern of the figure relies on the principles of the Polykleitan contraposto. The statue is considered as the work of a sculptor belonging to the Argive-Sicyonian Scool which continued the Polykleitan tradition, probably Kleon the Sicyonian. The statue dates to the decade 340-330 B.C.

Fig.4 Statue of Heracles

2.2 The Marble Sculptures

All the marble statues are of white Parian marble, clear and bright only in those parts that had remained well buried in the sediment of the sea bed. The others have been deeply eroded by stone- eating organisms and marine incrustations. The marble statues represent gods, heroes and mortals in various positions and most of them are oversized[4] (Fig.4). The larger than life-size statue of Heracles. He is leaning on his club and holding behind his waist the apples of Hesperides. It is a late Hellenistic copy, in the Heracles Farnese type, of a famous bronze statue made by the sculptor Lysippos at Corinth about 330-320 B.C A characteristic category of sculptures, "the Homeric Heroes" are original creations of the Late Hellenistic period, without precedent in Greek art. The Statue of Odysseus (ca 100 B.C.) is part of a large composition with Achilles. The statue of Hermes (ca.100 B.C.). The head and meanly the face were protected by the sand. Some of the marble statues were parts of groups or large-scale compositions.

2.3 The ship and its time

The port of the departure of the Antikythera ship remains unknown. Pergamon, Ephesos, Delos, as the island enjoyed the status of duty-free port for transit trade and Rhodes have been considered as the ship's port of embarkation. The valuable cargo was, undoubtedly, destined for the Italian market and Rome, which during this age was served by the port of Puteoli. During the troubled periods of history associated with the Roman conquest of the Hellenistic world, works of art, especially sculptures, were assembled all over the Greek world, either as spoils of war or as collectors' items. We know that the rich Romans ordered to Greek artists copies of famous statues to decorate their villas. Around 70 B.C the Roman orator Cicero was engaged in an ongoing correspondence with Atticus, a Roman banker and millionaire in Athens, for the purchase of bronze and marble sculptures to adorn his eight villas and for their dispatch to Italy on any appropriate ship. Also an ancient writer Loukianos mentions a large merchant ship, an holkas, that the Roman commander Sulla sent to Rome. The ship sank off the cape Malea, in the southern Peloponnese (near Cythera), with the loss of all its cargo, in 86 B.C. However, we could not prove any relation with the Antikythera ship because we do not know its cargo. Loukianos describes only a famous painting from its cargo. The Antikythera ship was also, a freighter (Gr. Ολκάς) of about 300 tons capacity. Three hundred and seventy eight (378) ancient works of art and coins highlight the great importance and wealth of its cargo. Also the great number of sculptures and vases and other cargo not raised, aboard the ship is an important factor in determining its type and function and possibly why it sank. The ship sank around the mid 1st c. B.C (70- 50 B.C), a period during which maritime trade and transportation of works of Greek art from the Eastern Mediterranean to Italy flourished.

Fig. 5 Showcase with the bronze statuettes

2.4 The Bronze Statuettes

The bronze statuettes (Fig. 5) are classicizing creations mainly of the 2nd c. BC. and they were influenced by sculptures of the Classical period [4].

Among them, one of the most important is the statuette of a nude youth, possibly an athlete, standing on its ancient red Laconian stone base. It has similarities with works by Lysippos of the 4th c. BC. The arms were cast separately and his right arm was missing. The arm was found in 1976, during the underwater research carried out by the Greek Archaeological Service, in collaboration with the explorer Jacques Cousteau, in the area of the Antikythera shipwreck. In the same showcase, a bronze sword which was cast with its sheath (κολεός) as a single piece. 3rd-2nd c. B.C. On the right, the left arm of a statue of a boxer, wearing the thong directly over his hand. Late 2nd-early 1st c.B.C. Also, a lyre from a bronze statuette of an Eros or Apollo.

2.5 The Coins

In this research also, was found a treasure of 36 silver coins, cistophoric tetradrachms[5]. Thirty-two of them were issued in Pergamon and four in Ephesos between 104 and 67 B.C. The hoard offers the most secure dating indication for the shipwreck as far as numismatics is concerned. The group was probably closed prior to 60 B.C. More than 40 bronze coins were retrieved accumulated in masses with corrosion products and incrustations. After separation and cleaning only six were possible to be identified, three are from Sicily (Katane, Panormos) and three from Asia Minor (Knidos,Ephesos) The date of their issue spans from the second half of the 3rd to the 1st century B.C. The presence in the shipwreck of bronze coins from various Mediterranean regions indicates the ship`s wide sailing range and also points to the place of origin of persons on board and to transactions carried out at inns, taverns and the docksides of Sicilian and Asia Minor ports.

2.6 The Glassware

During the final centuries B.C. luxury glass vessels[6] (Fig.6), were as desirable as those of precious metals. The glass vases from the wreck, all of the highest quality, must have been intended for clients who were prepared to pay high prices. From the wreck were recovered 20 vases intact or partly preserved, among which an alabaster and a number of bowls. The hard lime incrustation that covered their surfaces created a protective shell for them. The monochrome and polychrome vessels represent the best-known glassworking techniques of

Fig. 6 The Antikythera glasses

the Hellenistic age. Moreover, they provide a complete sampler of Syro-Palestinian and also Egyptian production of glassware in first half of the 1st c. BC. A fine bowl of green glass of early 1st c BC. is the only example known in glass. Probably the type derives from a silver or gold model

2.7 The surviving fragments of the Mechanism and the recent research

The rich cargo of the Antikythera ship attracted so much the attention of the scientists so that the small fragments forming a compact mass of copper, corroded and covered with marine concretions remain unnoticed for approximately eight months, until the first publication in May 1902. From 1902 to 1970, the scientists who studied the fragments of the Mechanism identified it as an astrolabe or some sort of navigation instrument. Professor Derek de Solla Price[7] studied for many years the fragments and in collaboration with the nuclear physicist Karakalos made the first radiographies on the Mechanism Price published his results in 1974 in a very important book "Gears from the Greeks. The Antikythera Mechanism - A calendar computer from ca. 80 BC." and he made a model which was donated to the Museum in 1980. He associated the Mechanism with the school of Poseidonios, on the island of Rhodes.

Fig.7 The surviving fragments of the Mechanism

Initiated in 2005 recent research[8], involves scholars from the NAM (the chemist E. Mangou and me), the University of Thessaloniki (Prof of Astronomy, G.Seiradakis), the University of Athens (Prof. of Astronomy Xenophon Mousas) and the University of Cardiff (Mike Edmunds, Prof of Astrophysics). I started the research in the storerooms of the Bronze Collection of the Museum. I discovered old and new fragments on a wooden tray inside small cardboard boxes inscribed "Antikythera" [9]. Besides the A, B, C which were on display, I found another four main fragments D, E, F, G and 75 smaller fragments from half to eight cm. The fragment E has been identified in 1976 by Dr Kalligas and the fragment F in 2005 by me. It preserved its original marine concretions since 1901. The first radiograph of fragment F showed that it preserved a piece of wood at one end as did Fragment A and two holes for the nails used to secure the fragment inside its wooden case. The fragment F is particular interesting as it forms the lower end and edge of the mechanism`s reverse (Fig.7).

For the first time all the fragments are on display in the temporary exhibition of the National Archaeological Museum. As you know, the Mechanism was not a simple device but an admirable scientific instrument. It is unique and the only one found. However the fragments themselves are in a very delicate state, much corroded and in danger of decay despite the conservation methods. As a consequence the Museum gave the permission for the new research for specific reasons.

To investigate the mechanism `s structure and inscriptions, the 2005 research used the most advanced, non-destructive, methods. The main aim was to be gathered all the necessary data in order to be created an archive of information for the present and future scholars. It is of great importance for the Mechanism to be exhibited in an appropriate, climate control case and do not be disturbed in the future for any reason. It is our obligation to inherit the fragments to the future generation at least in the condition they are today.

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