The Antikythera Shipwreck and Sinope's Culture during the Mithridatic Wars

Attilio Mastrocinque

During the last years my curiosity has been kept alive by the research of Giovanni Pastore, a great expert in engineering, who has studied all the possibilities of an instrument, which was found in the shipwreck of Antikythera.[1] This instrument is a box into which a series of 31 gear wheels have been placed in order to make astronomic calculations with a precision and of a complication that one had thought could only be attained in modern times.[2] In the 1950's D. de Solla Price studied this machine and reached the conclusion that it was a sort of clock, which had been adjusted in about 80 BC.[3] He put forward the hypothesis that two boards existed on the main surfaces. On the first side pointers indicated the placement of both the Sun and the Moon in the Zodiac, and on the other side other astrological conjunctions were shown. The pointers were moved by means of a driving wheel or handle. Michael T. Wright has recently put forward new results for the instrument, noting that it was more complex than was previously thought, since it is not complete and we do not know how many pieces are missing.[4] According to his reconstruction, the first side of the instrument was used to indicate the motion of the Sun, probably following the heliocentric theory of Aristarchos, and the motion of other planets. The opposite clock-face was perhaps a year calculator, which gave equivalences between the Egyptian year and other calendars and allowed the calculations of eclipses. Ceramic finds in the shipwreck allow a dating of the ship and its cargo to the 70's of the first century BC.

This intriguing topic pushed me towards a reappraisal of what we know about Anatolian culture in the period of the Mithridatic Wars. I realized that it was possible to determine a precise date for the Antikythera shipwreck, to discover the name of the city where some of the statues and the machine were taken from, and indeed the name of the genius who devised the machine. To begin with though, I will describe in a few words the composition of the cargo loaded in the ship and the various modern hypotheses about its origin.

The shipwreck of Antikythera was discovered and its content partially recovered at the beginning of the 20th century. It was filled with Greek statues and it seemed likely that they had been stolen from one or more Greek cities during the period of the Mithridatic Wars. The masterpieces from this

shipwreck are kept and exhibited at the Archaeological Museum in Athens. The most famous of these is a tall, naked, bronze athlete, but other remarkable pieces have been recovered: three *epheboi*, one *kore*, one philosopher's head, two statues of Aphrodite, two statues and one head of Hermes, two statues of Herakles, four of Apollon, one of Zeus, one of Philoktetes, two of Odysseus, one of Achilleus, plus the remains of four horses of one quadriga, and many fragments of other statues.[5]

The chronology and the place of origin of the ship have often been discussed. Rehm recognised the importance both of the machine for astronomic calculations and of the inscribed materials for the dating of the shipwreck, but his conclusions, pointing towards a date of about 30 BC, have been proved false.[6] Indeed recent research on the amphorae, ceramics, and glass from the shipwreck have given a more reliable date of about 80-70 BC.[7]

Another important shipwreck of the same period has been found on the Tunisian seashore, at Mahdia, and recently published. It was laden with a rich booty from Attica on its way to Rome after the pillage of Athens and Peiraieus by Sulla in 86 BC.[8] Therefore it is probable that the Antikythera shipwreck is also evidence for an episode from the period of the Mithridatic Wars.

The cargo's place of origin has been supposed to be Paros, because the statues are made of Parian marble,[9] but some scholars have proposed a Delian,[10] a Rhodian, a Melian,[11] or an Argolic origin.[12] Fausto Zevi observed that the amphorae and ceramics suggest that the ship's cargo originated in the East Mediterranean, further east than Attica.[13]

Let us now take into consideration historical evidence concerning the 70's BC and the looting of masterpieces of art in Greece and Asia Minor. Memnon of Herakleia narrates the sad destiny of Herakleia Pontike after the conquest by Licinius Lucullus in 72 BC (*FGrH* 434 F1, 35.7-8):

> Immediately Cotta sent Triarius to conquer the cities of Tieion and Amastris from Connacorex. He himself took the men who had surrendered to the Romans and the prisoners and treated them very cruelly. He was looking for treasure and did not spare even the contents of the temples but removed statues of men and gods, which were many and beautiful. He removed also the statue of Herakles from the agora, and every decoration of his pyramid, which was not inferior to any of the most famous sculptures in richness of materials, dimensions, harmony, beauty or artistry. His club was hammered and made of refined gold; a large lion's skin was draped on the statue, the quiver was of the same material and was filled with arrows and a bow. Many other beautiful and wonderful votive objects from temples and from the city were taken away …
>
> Cotta (…) sailed away with his fleet. Among the ships, which were bringing the booty from the city, some were overladened

> and sank near the seashore, others were cast ashore by a northern wind near the city, and many of the cargo ships were lost (author's translation).

Lucullus was a cultivated plunderer, who had the opportunity to choose the cream of the art and wealth of many Anatolian cities, which had never previously been sacked. From Memnon we know that not all his booty reached Italy. Another source, namely Strabo, also supplies us with very important evidence concerning this booty. Memnon and Strabo were both of Anatolian origin and therefore it is plausible that they can bear reliable witness to the pieces of art that were removed during the Mithridatic Wars. Strabo, describing the city of Sinope and its history, states that:

> The city was captured; and though Lucullus kept intact the rest of the city's adornments, he took away the globe of Billaros and the work of Sthenis, the statue of Autolykos, whom they regarded as founder of their city and honoured as god. (Strab. 12.3.11).

The conquest and submission of the Greek cities in Pontos happened between 72 and 71 BC, before the battle of Kabeira, and the sailing of the ship with Sinopean booty may be dated close to 71 BC. Strabo mentions only two works included in the booty: Billaros' *sphaera* and the statue of Autolykos by Sthenis, clearly because they were noteworthy and very famous. No other ancient authors mention Billaros' *sphaera*, and the reason for this, I believe, is that the ship, which was carrying it sank in the waters near Antikythera.

It is unlikely that two such machines used for astronomical calculations should have been carried by ships loaded with large quantities of spoils at the end of the 70's BC. In light of Strabo's passage and of the cargo of the Antikythera shipwreck, one has to draw the conclusion that the Antikythera astronomical machine is in fact the *sphaera* of Billaros. The ship must have sailed from Sinope in 71 BC with pieces of art from this city and possibly from other places in the area. The Antikythera shipwreck is an important testimony to the culture of Pontic Greek cities during the Mithridatic Wars. A study of the impact of Anatolian culture on Roman culture in the first century BC may be very fruitful. We know that Vergil, Ovid and other Augustan poets were influenced by Bithynian poetic tradition; we know that the library of Aristotle reached Rome from Troad after passing through Athens and Apellikon's library shelves. We can also put forward hypotheses about Anatolian influences on the Roman cult of Mithras.[14] Yet on the whole little is known about the Anatolian art, science and religion, which reached Rome in this period. We can only guess that Roman culture received a new impetus from the arrival of artists, scientists, poets, philosophers, pieces of art, and literary works from Anatolia.

It is impossible to recognize the statue of Autolykos among the statues from the Antikythera wreck, because the iconography of this hero is scarcely

known and two different Autolykos are known in Greek mythology.[15] Sinope was a city on the Pontic shore and therefore the Autolykos in question here had to be the fellow-soldier of Herakles during the war against the Amazons[16] and the companion of Jason during the Pontic exploits of the Argonauts.[17] He was considered to be the founder of Sinope, which he relieved from the Syrian occupation.[18]

One cannot say whether Billaros' astronomical calculator had to be used with a model of the cosmos, but this is highly probable. *Sphaera* was the common name for every model of the cosmos,[19] both of planispheres made by scientists and astronomers, and of astrological boards for oracular purposes. One can get an idea of what an astronomical *sphaera*, like that of Billaros, was from Cicero's description in the *de Republica* of Archimedes' *sphaera*:

> (*Philo is speaking)* … I will tell you what I have heard from Sulpicius Gallus, who was a man of profound learning, as you are aware. Listening one day to the recital of a similar prodigy, in the house of Marcellus, who had been his colleague in the consulship; he asked to see a celestial globe, which Marcellus' grandfather had saved after the capture of Syracuse, from this magnificent and opulent city, without bringing home any other memorial of so great a victory. I had often heard this celestial globe or sphere mentioned on account of the great fame of Archimedes. Its appearance, however, did not seem to me particularly striking. There is another, more elegant in form, and more generally known, moulded by the same Archimedes, and deposited by the same Marcellus, in the Temple of Virtue at Rome. But as soon as Gallus had began to explain, by his sublime science, the composition of this machine, I felt that the Sicilian geometrician must have possessed a genius superior to any thing we usually conceive to belong to our nature. Gallus assured us, that the solid and compact globe, was a very ancient invention, and that the first model of it had been presented by Thales of Miletus. That afterwards Eudoxus of Cnidus, a disciple of Plato, had traced on its surface the stars that appear in the sky, and that many years subsequent, borrowing from Eudoxus this beautiful design and representation, Aratus had illustrated them in his verses, not by any science of astronomy, but the ornament of poetic description. He added, that the figure of the sphere, which displayed the motions of the sun and moon, and the five planets, or wandering stars, could not be represented by the primitive solid globe. And that in this, the invention of Archimedes was admirable, because he had calculated how a single revolution should maintain unequal and diversified progressions in dissimilar motions. In fact, when Gallus moved this sphere or planetarium, we observed the

> moon distanced the sun as many degrees by a turn of the wheel in the machine, as she does in so many days in the heavens. From whence it resulted, that the progress of the sun was marked as in the heavens, and that the moon touched the point where she is obscured by the earth's shadow at the instant the sun appears above the horizon. (Cic. *Rep*. 1.14.21).[20]

Posidonios produced another mechanism of this kind.[21] Examples of oracular *sphaerae* also include that of the Pseudo-Demokritos mentioned in a magical papyrus,[22] two astrological boards from Grand,[23] and the bronze astrological board, which was used by bishop Sophronius in the middle of the fifth century AD.[24] Obviously, Billaros' *sphaera* ought to be similar to that of Archimedes, and the machine recovered at Antikythera has the means to move or to place the heavenly bodies in a planisphere.

The identification of Billaros' *sphaera* as the instrument in the Antikythera shipwreck allows a new evaluation of the cultural level of the Greeks on the Pontic shore, who previously had been an almost unknown part of the Greek world. It will be left to the specialists of Greek sculpture to place the masterpieces of the Antikythera shipwreck into the frame of Anatolian culture.

Notes

1 On which see Svoronos 1903.
2 Pastore 2006. A fragment of an inscription on the instrument seems to transcribe a passage of Geminos, an astronomer and mathematician who lived in Rhodos before 70 BC. It may be a guide to help the users of the instrument.
3 Price 1975. Further remarks in Bromley 1986, 5-27.
4 Wright 2003; 2004; 2005a; 2005b.
5 On the statues, see Bol 1972.
6 Rehm's theories were left unpublished but passed through G. Karo to Leroux (1913, 102) and Lippold (1923, 250, n. VI.6). Cf. Zevi 1966, 163.
7 Weinberg, Grace & Edwards 1965, with a review by Zevi 1966, 163-170.
8 Hellerkemper Salies (ed.) 1994, and especially, Himmelmann 1994, 849-855.
9 Rubensohn 1935, 49-69.
10 Bol 1972, 119-120.
11 See Bol 1972, 114.
12 Svoronos 1903; 1908, according to whom the ship was from the Constantinian age.
13 Zevi 1966, 165.
14 Cf. a recent contribution by Beck 1998, 115-128.
15 Touchefeu 1986, 55-56.
16 Hyg. *Fab*. 14; Plut. *Luc.* 23.
17 Ap. Rhod. *Argon.* 2.955-961; Val. Flacc. 5.113-115.
18 Plut. *Luc.* 23. It is possible that Autolykos became the anti-Syrian hero of Sinope during the war against Antiochos I of Syria at the beginning of the third century BC.

19 Schlachter 1927, 29-31.
20 Translated by F. Barham. Cf. Cic. *Tusc*. 1.25.62.
21 Cic. *Nat. D.* 2.88.
22 *Papyri Graecae Magicae* XII, 352ff.
23 Abry (ed.) 1993.
24 Peterson 1948, 101-102.

Bibliography

Abry, J.H. (ed.) 1993. *Les tablettes astrologiques de Grand (Vosges) et l'astrologie en Gaule romaine*. Lyon.
Beck, R. 1998. The mysteries of Mithras: a new account of their genesis, *JRS* 88, 115-128.
Bol, P.C. 1972. *Die Skulpturen des Schiffsfundes von Antikythera* (AM Beiheft, 2). Berlin.
Bromley, A.G. 1986. Notes on the Antikythera mechanism, *Centaurus* 29, 5-27.
Hellerkemper-Salies, G. (ed.) 1994. *Das Wrack. Der antike Schiffsfund von Mahdia*. Köln.
Himmelmann, N. 1994. Mahdia und Antikythera, in: Hellerkemper-Salies (ed.) 1994, 849-855.
Leroux, G. 1913. *Lagynos*. Paris.
Lippold, G. 1923. *Kopien und Umbildungen griechischer Statuen*. München.
Pastore, G. 2006. *Antikythera e i regoli calcolatori*. Roma.
Peterson, E. 1948-1949. Die Zauber-Pratiker eines syrischen Bischofs, in: A. Casamassa (ed.), *Miscellanea Pio Paschini: studi di storia ecclesiastica*, I. Roma, 95-102.
Price, D.d.S. 1975. *Gears from the Greeks*. New York.
Rubensohn, O. 1935. Parische Künstler, *JdI* 50, 49-69.
Schlachter, A. 1927. *Der Globus. Seine Entstehung und Verwendung in der Antike nach den literarischen Quellen und den Darstellungen in der Kunst* (Stoicheia, 8) Leipzig.
Svoronos, I.N. 1903. *Ho thesauròs ton Antikytheron*. Athens.
Svoronos, I.N. 1908. *Das Athener Nationalmuseum* I. Athens.
Touchefeu, O. 1986, s.v. Autolykos I and II, *Lexicon Iconographicum Mythologiae Classicae* III.1, 55-56.
Weinberg, G.D., V.R. Grace & G.R. Edwards 1965. *The Antikythera shipwreck reconsidered*. Philadelphia.
Wright, M.T. 2003. Epicyclic gearing and the Antikythera mechanism, part I, *Antiquarian Horology* 27.3, 270-279.
Wright, M.T. 2004. The scholar, the mechanic and the Antikythera mechanism, *Bulletin of the Scientific Instrument Society* 80, 4-11.
Wright, M.T. 2005a. Il meccanismo di Anticitera. L'antica tradizione dei meccanismi ad ingranaggio, in: *Eureka. Il genio degli antichi*. Napoli, 241-244.

Wright, M.T. 2005b. The Antikythera mechanism: a new gearing scheme, *Bulletin of the Scientific Instrument Society* 85, 2-7.
Zevi, F. 1966. Review of "The Antikythera shipwreck reconsidered", *ArchCl* 18, 163-170.