

## SHIPS IN ARSINOITE ARCHIVE OF SITOLOGOI

Social and economic historians of the ancient world are often disappointed to find that literary sources have not enough relevant information on ships and shipbuilding. Ancient authors only rarely discuss trade and commerce, and when they do so, their comments are vague and sometimes biased<sup>1</sup>. Of course, there are exceptions like Demosthenes, who in his speeches gives important data on trade, trading adventures, finances, banking, etc., but the speeches and the numerous inscriptions found in the eastern part of the Roman empire tell nearly nothing on ship and their loading capacity.

Far better material is found in Egypt. Thanks to thousands of papyri scholars now have a relatively good knowledge of ships and shipping in Egypt. In this paper I will concentrate on Egyptian ships of the second century BC. In that period the social stratification in Egypt showed a relatively small upperclass, consisting of the Macedonian-Greek and Egyptian elite. The economic power was in the hands of this elite. The Ptolemaic dynasty, the top of the elite, developed numerous instruments to maintain their position. They had made regulations to ensure tax-collection and transportation of tax-grain to Alexandria. From there the royal grain was transported over the Mediterranean.

I confine myself to the middle of the second century BC. and concentrate on the new data given by Ph.A. Verdult in his *Papyri Erasmianae II. Parts of the Archive of an Arsinoite Sitologos from the Middle of the Second Century BC* (Amsterdam 1991). This second part of the *Papyri Erasmianae* which were bought in the middle of the 1970s by the Erasmus University of Rotterdam, consists of 37 contracts, all concerning the shipping of the tax-revenues in kind in Ptolemaic Egypt for the years 152-148 BC. All these texts belong to an archive of at least two sitologoi who managed the *ergasterion* at Oxyrhycha. The texts are 13 loading-orders and 24 *naukleros-symbola*, documents which *naukleroi* after loading gave to the sitologos and the supervisors. In all cases but one the cargo loaded was tax-grain. The crops generally came from the *ergasterion* at Oxyrhyncha and were loaded in the harbour of Kaine. The destination of the cargo was the *basilikon* at Alexandria.

The organisation of the transports began with the orders given by the central government at Alexandria to the provincial governor. Then this official sent out two documents, one, a loading order, to the sitologos, the manager of the *ergasterion*,

the other to the basilikos grammateus, an administrative official at provincial level, who was his subordinate. The loading order to the sitologos intended to ensure that he could take care of the actual loading of grain. The document addressed to the basilikos grammateus played a role in the supervision system.

When the loading began, the sitologos, the inspectors and the naukleros, the shipowner who was to transport the cargo to Alexandria, were present. On the ship were guards, and, sometimes, phylakitai, a sort of policeman. They took care of the deigma, the sample taken upon loading, so that upon unloading at Alexandria the quality of the sample and that of the cargo could be compared.

After the loading the sitologos and the inspectors gave a symbolon and one or several antisymbola to the naukleros. He for his part gave a symbolon to the sitologos and one or several copies of the symbolon to the inspectors. From that moment onwards the naukleros was responsible for the transport to Alexandria. The guards accompanied the transport on the Nile. When the transportation had been properly executed, the naukleros received a releasing receipt and could receive his freightage from the state bank.

### **SHIPTYPES**

In the loading orders and naukleros-symbola different types of ships are mentioned. Mostly the word ploion, the general term for ship, merchant galleys as well as sailing craft, is used. Sometimes this term is used for very small boats of only 60 artabs (1.5 ton), sometimes for ships with a capacity of more than 5.000 artabs (125 tons). In other cases the ships are more specifically defined: kerkouros, kerkouros halegos, kerkouroskaphe, konauthion and prosagogis. I will now discuss the different types.

### **KERKOUROS**

The standard type for the transport of grain on the Nile was the kerkouros. This was usually a fairly large ship, as we know from P. Tebt. III 856. The 22 ships mentioned in this papyrus, of which details are known, have a capacity varying from 9.000 artabs to 18.000 artabs, i.e. from 225 tons and 450 tons<sup>2</sup>. Smaller kerkouroi are known. In P. Tebt. III 824 a kerkouros of only 3.000 artabs is recorded. The smallest known kerkouros until the publication of Papyri Erasmianae II has a capacity of 2.000 artabs<sup>3</sup>. In the Papyri Erasmianae II five kerkouroi are mentioned with a capacity varying from only 500 to 900 artabs<sup>4</sup> very small ships compared with other kerkouroi.

It is striking that all the kerkouroi in this archive are very small. It can not be excluded that in this archive the term is not used for a special type of ship, but that it is used in a general sense comparable with ploion.

The naukleroi mostly carved on both sides of the bow of their ships a distinctive device (parasemon), a figurehead or another special emblem, so that their ships were identifiable. Two of the kerkouroi (P. Erasm. II 45 and 50) had no devices and are qualified as acharaktoi ("uncarved"). According to H. Hauben there are only a few examples of Ptolemaic boats which are expressively defined as anonymous<sup>5</sup>.

### **KERKOUROI HALEGOI**

Three of the kerkouroi (P. Erasm. II 25, 37, and 44) are called halegoi ("salt transporting"). Since in Egypt the salt trade was a state monopoly, salt ships must have been very common in Egypt. The name kerkouros halegos suggests that a special type of ship was used for salt transport<sup>6</sup>. Two of these salt ships have a capacity of 700 artabs. This small capacity is not surprising, since salt was not a bulk good and was not transported in large quantities. It is more striking that salt ships were used for the transport of state-grain. Probably in the Summer months July and August so much grain had to be transported that other ships were needed to transport all the state-grain.

Since here too the kerkouros is a small ship, what I said before is here applicable too. Possibly a ploion halegon is meant, a small salt ship.

### **KERKOUROSKAPHE**

Twice (P. Erasm. 45 and 50) a kerkouroskaphe is mentioned, a rare combination of the words kerkouros and skaphe ("skiff"). Mostly the kerkouroskaphe is a smaller version of the kerkouros, a "kerkouros-skiff"<sup>7</sup>. P. Ryl. IV 576 (third century BC) mentions a kerkouroskaphe with a capacity of only 200 artabs and P. Lille I 22 (mid. second century BC) a kerkouroskaphe with a capacity of 300 artabs. The largest Ptolemaic kerkouroskaphe is mentioned in P. Sorb. inv. 110 a: 1600 artabs<sup>8</sup>.

The capacity of this ship in P. Erasm. II 45 is not mentioned. The kerkouroskaphe in P. Erasm. II 50 has a very large capacity: 4.000 artabs. It is very surprising that of all the ships mentioned in P. Erasm. II the kerkouroskaphe has the largest capacity. These kerkouroskaphai were probably sea-going vessels, as we can read on the docket of P. Erasm. II 45, which uses the word nautikon

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ploion, sea-going ship. Most other kerkouroskaphai were used only on the Nile.

### **KONAUTHION**

The Konauthion is a stranger in the midst of the other cargo ships. The name is neither Egyptian nor Greek. The only other occurrence of this ship is P. Hels. I 73. The loading capacity is not given in P. Erasm. II 43, but only the cargo that was loaded: 400 artabs.

### **PROSAGOGIS**

In six loading orders the prosagogis is mentioned. This ship is only recorded in a few other papyri, such as in P. Lille I 21, where the prosagogis has a capacity of 3.500 artabs. The six prosagogides in P. Erasm. II (28, 38, 41, 46, 49, 53) all have a capacity of 2.900 artabs, which leads me to suggest that these ships were mass produced. Ship construction in the Graeco-Roman world was very complicated and wood in Egypt was scarce and expensive, and the costs of building a ship must have been very high<sup>9</sup>. It must have been cheaper to buy wood in bigger quantities and to built more ships at the same time. Another papyrus offers a point of departure. We know from P. Flor. I 69<sup>10</sup>, an account of the second part of the third century AD that naupegoi ("shipwrights") and pristai ("sawyers") were working simultaneously on a boat. The sawyers cut frames and the shipwrights inserted frames in the hull. The shipwrights received seven drachmas a day and the sawyers eight drachmas. This account covers 15 days and in all 69 daily wages are paid to the shipwrights and 16 to the sawyers, a total of 611 drachmas. It is unknown whether in these fifteen days a ship was completed. Perhaps the shipwrights and the sawyers worked on more ships at the same time. Given the very high costs of wood and the good organisation of Ptolemaic Egypt I would expect that the authorities imported wood for more ships and put more men to work, so that the costs for building a ship could be lowered.

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1. See F. Meijer and O. van Nijf, *Trade, Transport and Society in the Ancient World. A Sourcebook*, London 1992.
2. Cf. L. Casson, *Ships and Seamanship in the Ancient World*, Princeton 1972, 164.
3. Cf. P.J. Sijpesteijn, "Three new Ptolemaic documents on transportation of grain", *Chronique d'Égypte* 53 (1978), 110; the editor refers to P. Strasb. 563 (215 BC), in which the ship is mentioned.
4. P. Erasm. II; 500 artabs; P. Erasm. II 36:540 artabs; P. Erasm. II 33:700 artabs; P. Erasm. II 52:700 artabs; P. Erasm. II 40:900 artabs.
5. H. Hauben, "Le transport fluvial en Égypte ptolémaïque. Les bateaux du Roi et de la Reine", *Actes du XVme Congrès de papyrologie*, Bruxelles (1978), 73.
6. Cl. Préaux, *L'économie royale des Lagides*, Bruxelles 1939, 249.
7. Cf. Casson, *Ships*, 166.
8. Cf. Hauben "transport fluvial", 72-73.
9. See H.-J. Drexhage, *Preise, Mieten/Pachten, Kosten und Löhne im Römischen Aegypten bis zum Regierungsantritt Diokletians*, Münster 1991, 112-118 and 329.
10. Published by L. Casson in "Documentary evidence for Graeco-Roman shipbuilding (P. Flor I 69)", *Bulletin of the American Society of Papyrologists* 27 (1990), 15-19.