

**ARCHAEOLOGICAL EXCAVATIONS AND EXPERIMENTAL  
ARCHEOLOGY:  
THE PUNIC SHIP OF MARSALA AND THE TRIREME “OLYMPIAS”**

I would like here to render homage to Auguste Jal, whose *Glossaire Nautique* we are re-editing at the *Laboratoire d'Histoire Maritime* of the Sorbonne, homage as the father of naval archaeology and of experimental archaeology. In the latter, he did not hesitate in urging Napoleon III to reconstruct a trireme. I studied this case which is usually now hold up to ridicule but we must remember Dupuy de Lôme supplanted Jal and constructed a monster. If Dupuy de Lôme had accepted collaboration with Jal, he would have certainly missed considerably, for instance the knowledge of mortise and tenon joint construction or the Zea shipsheds; but he would have had the epigraphy and, so, made a light vessel instead of a boat like a “trois-ponts”. Thanks to the texts, he would have put 170 rowers instead of 130 in his giant. Unlike Dupuy, a military engineer of genius, Jal was an erudite who thought that science advances progressively by the trial and error system, according to the experimental method of their contemporary Claude Bernard.

Since then, underwater archaeology has revolutioned our data. Nevertheless the act of interpreting an excavation is not neutral and it can't be done without the texts and epigraphy as we shall see in relation with the Punic Ship of Marsala. On the other hand, excavations, even after correct interpretation, don't show everything - which justifies experimental archaeology.

Coming back to the Punic Ship of Marsala, excavated, emerged and partially reconstructed by Honor Frost, she is the only ancient war vessel we possess, even if we don't know her row system. According to the authors of the Excavations Report, she seems to be a 30 row (approximately) vessel, that is either a *triacontor*, light boat used as a scouting vessel or for piracy, or an *actuaire*, a combined ship (sail and rowing) used as support ship. The *triacontors* date back from pre-homeric times, even if later they were used marginally; the mere existence of *actuaires* is questionable. That is why the authors did not give none of the two names to the ship, but they called her *liburne*, a later word than the year 241 BC, in ancient literature that simply means (war) galley and not *bireme* as it has been repeatedly mistranslated despite the texts (c. for instance Suetonius, Caligula, 35)

Actually, the ship of Marsala, sunk in 241 BC in the Aegades Islands, formed part of a homogeneous Carthage fleet that fought at undoubtedly equal number the 200 Roman *penteres*. According to Polybe, we know that this fleet wasn't composed of any transport, due to the tactics of Hamilcar.

Near 200 punic *quinqueremes* charged with wheat, material and young recruits should have disembarked by surprise at the foot of the mount Erice in order to reinforce the camp of Hamilcar Barca, and to embark him and his veterans, instead of the cargo, to fight the battle.

Neither slow cargo ships, nor extremely light triacontors were chosen for such a task but only powerful and fast war ships, charged with provisions (just as the Japanese supplied Guadalcanal with heavy destroyers and cruisers at the end of the fights). But the Cartaginians were attacked before by the Romans and taken or sunk, that put an end to the First Punic war.

The Carthaginians were sure of their superiority in speed thanks to the hull deflectors inaugurated on the *quadrireme* the Rhodian, captured shortly before by the Romans. But this enabled the Romans to construct a fleet based on the model of the Rhodian, therefore as fast as the Punic fleet which, despite having the wind astern, could not break the blocus of Lutatius Consul that intercepted it at the last moment.

For Polybe, only *penteres* are present in the Aegades battle. According to Honor Frost, the Punic Ship had 17 rows on each side, all at a single level and at 1.40m one from another. But this 1.40m spacing corresponds only to the attachment spaces of an outrigger or a fighting deck. Between each space, two rows fit as well as a single one, and the existence of two of them is more plausible since a 1.40m space per row seems excessive as the Olympias example shows. On the other hand, since the topsides were not kept, we could think of a ship with three ranks of rows - the most common during the Roman age in epigraphy - while moneres are very rare - this is certainly not an effect of a hazardous finding.

The reconstituted measures of the Punic ship (37m x 4,8m), minimized in my opinion, means she would fit inside the 40m x 6m dockings discovered in 1977 by Hurst in Carthage (Admiralty Island) where we know *quinqueremes* were kept. Everything seems to prove that the Punic ship is a *pentere*, statistically probable if we remember that "during this war, there were lost for sure: 700 by the Romans, those in the wecks included, and around 500 by the Carthaginian" (Polybe, *Histories*, Book I, 63-6), 50 of them sunk only in the Aegades...

Epigraphy finally confirms our thesis since, even if we do not have a reproduction of the *monoreme* endowed with the beak-shaped ram so particular of the Punic ship, the Trajan Column offers the whole of the Danube fleet entirely composed of *polyremes* - *biremes*, normal for a fluvial fleet - and also an admirable *trireme*, Trajan's own admiral ship. No need then to make such a big effort of imagination to see the resemblances between Trajan's *trireme* and the *quinquereme* of Marsala.

My opinion on the dimensions of the ship of Marsala is confirmed by the essential work of Michel Reddé, *Mare Nostrum* (Ecole Française de Rome, 1986, pp 36-37). According to him, the Punic Ship has at least the size of a *trireme*; which is not surprising when we know that the hellenistic port of Carthage housed "3" and later "5", without modifying the dockings. We are therefore far away from a small vessel and closer to a *quinquereme*.

Despite its great contribution and the fact it is an unforgettable fragment of the past, the Punic Ship - emerged and reconstructed once then dismantled by "unknown" interests and reconstructed again thanks to the unrelenting activity of Miss Honor Frost - is yet not enough for the researcher. In my opinion the error of making her a 68 rowers liburne explains itself by the intellectual background of the time when most experts denied the possibility of ever finding a warship for lack of freight. Therefore in the excavation report, (*Lilybaeum*, Honor Frost and alii, 1976) dating from 14 years ago, a compromise was made that, as we have said, explains itself by the sociology of knowledge.

Since then, we have had Hurst's excavations confirming those of Blackmann in Zea; the ram of Athlit, whose weight - in default of the form - should be compared with that of the reconstituted ram of Marsala; the "sockets" of the Trophée of Actium from which the size of the Athlit ship can be deduced; and specially the discovery of the ship of Giens (that explains the *Foro delle Corporazioni* in Ostia where merchantships are seen with what is believed a ram) confirm that 68 men couldn't have manoeuvred a vessel such as the Punic ship and even less used her ram, since she surely did have a ram and not a stem bulge. This fades away the existence of *actuaires* while generally Polybe shows clearly the distinction between warships (*penteres*) and support ships but never the existence of dual-propulsion ships.

The last discovery, if I may say so, was the trireme of John Morrison, reconstructed according to the texts and the epigraphy. The total lackness of archeological fragments could be criticized; but considering the abundant references of John Morrison and John Coates' knowhow as a naval architect, as well as what both have told us about the Olympias's performances comparable to the Ancients, I would say that the trireme is 90% authentic and that the other 10% can be discussed in one sense or the other, this is considerable (who would say as much for a Physical theory?)

Now Olympias is smaller in beam than the Punic ship considering the fusion of the outrigger with the fighting deck:

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Olympias	37m	5,5m
Punic Ship	37m	6m

which explains why the latter has two men per row on the topside according to Honor Frost, this was not possible for the Olympias, and it could form the *thranites* of a *quinquereme*.

On the other hand, we think the speed of “3” and “5” must have been equivalent. And we have several hypothesis: first during the battle of Amorgos the Athenians could not escape, I think they would have it if they could! Second, the lack of “3” as scouting vessels during the First Punic war (Polybe would have mentioned it) - their uselessness made them soon disappear from Roman fleets. Another example is the “5” that captured the Rhodian (a “4”) and finally Anthony who escaped on a “5” to come up with Cleopatra, leaving his *decere*.

We may conclude that the speed of “3” and “5” was more or less the same, which means a “5” needed much superior human engine: adding seaman and “marines”, a vessel charged on the topside therefore ballasted, that the human engine had to reckon with.

Now that we have reconstructed a *trireme*, theoretically nothing keeps us from reconstructing a *quinquereme*, the largest ship useful to thalassocracies after the *trireme*, with three ranks of rowers an two men per row on the two upper levels (cf John Coates, *American Scientific*, 1989). We think this task is possible only on the basis of the ship of Marsala that we are fortunate to have, under the condition, of course, that she is repaired and housed in a museum protecting and exposing her. If still some doubts exist regarding the vessel, the hull can be finished using the CAO (computing aided conception) and then the method by segments used for Olympias to reconstruct the rowing system. A combination of both models would be a real scientific breakthrough. I would like to try from 68 to 268 rowers, I think the latter is the appropriate solution, nearer the speed of this one “5” - had approximately that number of rowers according to what we can deduce from Polybe. In exchange, such a vessel could offer useful information on the “3”.

This is my conception of science and the reason why I don't think there should exist any conflict between Experimental Archaeology and Underwater Archaeology.

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