

NAVAL BATTLE

Justine Vernet – The end of the Punic Wars was marked by a naval battle between Carthage and Rome. The former was already an empire at the time, dominating the entire Mediterranean periphery; the Roman republic had spread throughout the entire Italian peninsula, and had far-seeing ambitions including views on Sicily. The Aegates naval combat is mostly documented by Polybus, who gave a detailed account of the battle despite writing nearly a century later, hence by no means a direct witness to it. His version, however, is still considered the most reliable one.

So it came to pass that Rome won this most decisive battle. But under water, down deep at the site, Roman rostrae make up an overwhelming proportion of the finds. A rostrum is a ram, a bronze metal ram positioned at the ship's helm. Its purpose was to crash into enemy ships and rip them apart. Under water, we found 27 rostrae - a remarkable assembly - but most are Roman and very few Carthaginian. Where have all the Carthaginian rostrae gone; how did Rome win the battle with so many rostrae lost, compared to its opponent? One of our first suggestions was that the Carthaginian flotilla was mostly composed of Roman-built ships captured in a previous encounter. Today, our main line of research is to find out who was on board these ships, to analyze their personal ornaments. We have their coins, which provide crucial indications on their identity; we also have their helmets, their cheek-guards, their entire defensive gear.

My own research program started when we chose to perform a more detailed study of this material, with a physical-chemistry approach. The purpose is to sort out groups due to distinct metallurgical production sites around the Mediterranean Sea and possibly relate each object to a specific cultural area. I study each object very carefully, then perform a morphometric analysis with mathematical algorithms in order to provide a mathematical formula to its shape. Then I remove a very small sample - a few millimeters - and study it under a microscope, thus providing different information. I can discern the metal's structure, how it initially cooled down, I can identify inclusions - hence impurities captured in the host. This provides indications on the manufacturing process: was the melt put into a mould, or was it sheet metal, to be hammered and shaped?

Just as a diver aims at sea depths, an archeometer dives into matter at different scales, down to microns or nanometers, in order to restore some identity to the sailors of these poorly-known flotilla. The objects themselves lay there, on the sea-floor some 80 meters below the surface, under the battle site. Divers today manage to ferret out, sometimes in spectacular ways, a rostrum or a helmet waiting there on the sea-floor, quite ready to offer its story...