

(by Athanasios Tolis, mechanical-engineer)

### Engineering and technology

The technological advances constitute an interesting basis for the analysis of the ancient organized societies. During the lifetime of Myrtis, right after the Golden age of Pericles, the technological achievements had already been mature enough and proven in the construction of Parthenon and of the masterpieces realized in the wider area of the ancient Athenian Acropolis. These constructions had already been completed characterizing the Golden Age as one of the most brilliant periods of human civilization not only in respect of engineering progress but also in terms of spiritual perfection, financial robustness and military power. The experience gained as well as the tools developed during that period, were of significant importance, regarding the reliability and the duration of the constructions. Technological advances have been recorded in multiple areas of science and everyday's activities like private (and/or municipal) constructions, energy (for heating and cooking), domestic infrastructures as well as in military activities. In the next subparagraphs, some of the technical advances are briefly described thus giving an image of life standards during the time-period of Myrtis.

### Civil engineering and constructions

The houses were built upon rock solid substructures. The raw material of the walls was mainly comprised of wood and/or bricks whilst the roofs were usually constructed using tiles. Very few windows were used for the lighting (for safety reasons) and there was only one door (usually from wood). As for the floor, it was covered with little pebbles on a lime mortar sub layer. The tools used for the construction were pretty much similar with today's hand tools. The heavy lifting mechanisms (cranes) were used for big public constructions and they were similar to modern cranes—at least to a point, mainly concerning the basic principles of operation—.

### Energy needs

The ancient Athenian homes (Hestia) were mainly heated by wood-fired (or more rarely wood coal) stoves. Stone furnaces were used for the cooking usually in the yard. Portable furnaces were also used for this task. The portable furnaces were also useful for internal heating thus exploiting the energy source (wood) for two tasks. In this manner the efficiency of the fuel were maximized, which remains a challenge even for today's energy designers.

### Furniture and domestic vessels

The furniture of the Athenian home (Hestia) was comprised of simple tables and beds covered with multiple blankets and pillows. The cookers (basically very small fictile vessels) indicate the cooking habits as well as many problems related with the food maintenance. For this reason the cooking and the maintenance procedure imposed the need for small food quantities. The seeds were usually roasted thus extracting a nice smell, whilst it is noted that frying with olive oil, was not a known practice.

### Military techniques

The 4th century B.C. was marked by deadly long lasting military operations between the stronger military powers of Greece. An optimal military operation was mainly based on the fast communication between the units and/or troops in order to coordinate their moves thus finishing

the opponent. The “hydraulic telegraph” and the “pirsia” were the most significant components of the communication system of the era. The “hydraulic telegraph” was comprised of a complicated water barrel’s network. Vertical rods marked with the letters of the alphabet were attached to floating corks. The “pirsia” was mainly comprised of a system of fires lighted in subsequent vigilantes thus enabling an early-warning system and message transmission.

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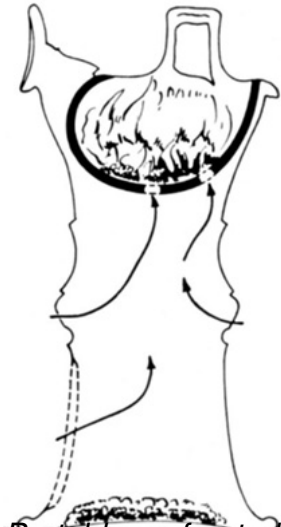
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### English Glossary:

Crane: Ancient system used for the lifting, handling and movement of megaliths (heavy stones or marble volumes). The cranes were mainly used for the construction of temples or public buildings (like academies, barracks etc.). A draft schematic of an ancient crane is shown in the following picture.



Diagram of the trireme (top) of the Myrtis' time. Source: <http://www.tamh.edu.gr/aet/index.html>



Portable perforated furnace. Source: <http://www.tamh.edu.gr/aet/index.html>

Source: <http://www.tamh.edu.gr/aet/index.html>