

The First Standard!

Looking Back at the Dawn of Conformity Assessment

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Conformity assessment is the process that shows that a product, service or system meets the requirements of a standard-regulation-specification. Conformity assessment provides consumers and other stakeholders with added confidence, it gives a company a competitive edge and it helps regulators ensure that health, safety or environmental conditions are met.

When applied to a product, it involves testing to an established performance standard, as well as inspection, quality management, surveillance, certification, accreditation and declaration of conformity.

An essential element for Conformity Assessment is Standardization which is the process of making “something” to conform to a standard. Such a standard can be a document, established by (a consensus of) subject matter experts, that sometimes becomes approved by an authority (regulator), that provides guidance on the design, use or performance of materials, products and/or processes.

Based on standards, client requirements and relevant applicable regulations, organizations are developing products and/or is offering services to satisfy consumer requirements. In order to safeguard the quality, the reliability, the consistence and the safety of those products and services “quality control” was introduced. Quality control is the system of maintaining standards in manufactured products by testing a sample of the output against the specification.

Standardization, certification, quality control of products, consumer protection. Strange though it may seem, these are not modern discoveries of our technological culture!

The research of many scholars shows that their roots stretch far back into antiquity and that they were characteristic features of societies with a high cultural and advanced technological level: Parthenon, for example, in ancient Athens, couldn’t be built without such a “quality” culture. Technical development of humanity is inconceivable without the application of norms to ensure the quality of the materials used and the consumer goods produced. Historical evidence shows that the ancient Greek civilization devised a statutory framework for “quality”, a basic requirement for the development and growth of human societies.

During Classical times in Greece there was a mechanism in place for the quality control, standardization and certification of items produced and sold in many cities-states around the Mediterranean Sea. The ancient Greeks applied standards with very strict specifications and regulations with harsh penalties for anyone who did not comply. These standards covered the entire range of products made at that time, from metals and their alloys to agricultural products, foods, beverages even building products! This might seem strange, but it is nevertheless true.

It is worth mentioning that in 1863, D. Filios discovered an inscribed stele of the 4th century BC (fig. 1) in the city of Eleusis.



Figure 1. The Eleusis stele

The study of its text led to a very interesting conclusion; this inscription is the most ancient example of a technical standard, with strict specifications for the manufacture of building materials known as “empolia” and “polio”, that is, the bronze fittings/dowels used to join the drums of the columns of the ancient buildings (fig. 2.). The specifications concerned the origin, the chemical composition and manufacturing process of the bronze fittings.

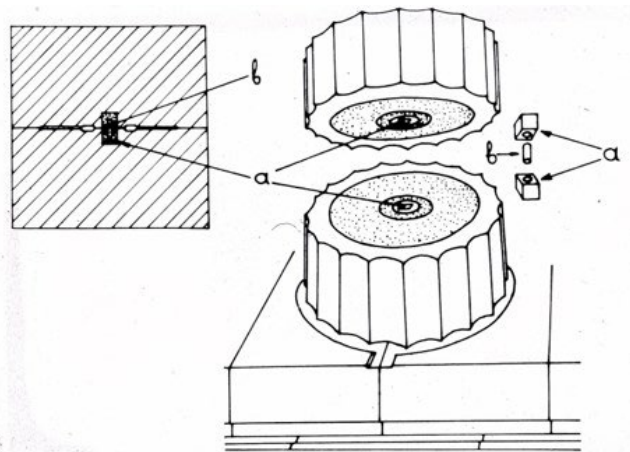


Figure 2. “Empolia” and “polio”, the bronze fittings/dowels

At some point, the inscription mentions the following interesting fact: *“to shape hard bronze on the lathe into cylindrical dowels (b) according to a particular sample...”* which can be considered as a primitive “reference material”!

Most important, however, is the reference to the origin of the raw material and its composition as prescribed in the inscription: *“the copper must be produced in Marius, Cyprus (a large commercial and metallurgical center in antiquity) and of its twelve parts, eleven were to be of copper and one of tin”*. That is, approximately 92% copper and 8% tin. That was important not only from the structural point of view but also considering that the price of tin was seven times higher than copper.

Further study of this inscription’s text leads to the astounding conclusion that standards and quality control principles were applied at least 2,600 years ago!

Interesting times indeed!

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