

WHAT DROVE THE ROMANS

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by James Collins

All the great empires of the world arose due to various events. In many cases, their environment influenced them. This includes their language, their customs, and their neighbors. The Roman Empire and the Arab empire have both flourished for long periods but both responded to different events, customs, locations and language.

The Italian Peninsula is a rocky area with mountains running north to south, which act as a spine. This forced the Romans to build most of their houses, monuments, aqueducts and other functioning apparatus out of stone. The tool most associated with this building process is the chisel. Stone masons have used chisels ad infinitum to work the stone, to mark it, identify the year of construction and to put their personal mark on the work to show that they created it.

The basic chisel is a flat straight-sided instrument. Because this was the most common tool, it greatly influenced the Roman numerals system. Every one of the numbers in the Roman numerals system uses a straight element. There are no curves in Roman numerals. (I II III V X M L < I >) The resulting Roman numerals system is long and extends as the number size increases. It greatly restricts scientific operations, as you cannot multiply using Roman numerals. Because of this limitation, the Roman Empire leaned more into military expansion rather than commercial or scientific expansion. Their system though simple, met their basic needs. However, it restricted their expansion into scientific areas. Their ability in military instrumentation caused them to expand and exist for 1000 years.

The Arabs on the other hand came from magnificent desert areas. They develop a numbering system based on 10 digits (the number of fingers on two hands) to write and calculate their transactions. They merely leaned down to the sand below and using flourishes, wrote the numbers in cursive. Using the familiar one through nine numerals in cursive, they developed a system, which would be outstanding in scientific calculations. They can multiply readily and by the use of the zero multiplication by tens, hundreds and thousands is a simple matter. Because of this numerical advantage, the Arabs became great traders and merchants. They developed schools, universities and dealt in medicine, astronomy, mathematics, optics and all of the sciences. Their empire grew in a different way but also existed for an extensive period.

Both of these empires grew to be extraordinary powers in the world. However, each of these was restricted from the other's area of expertise because of their difference in numerical processes. The Romans could not anticipate many of the scientific arenas that the Arabs eventually discovered and expanded. The Romans were prohibited from this area not because of a lack of intelligence because they had selected a methodology in expressing numbers that precluded their ability to see entire universes of knowledge. Our modern Italians, the descendants of the ancient Romans, have recognized the restriction of the Roman numerals system and have abandoned them. They as every other major Western nation have adopted the

Arab numbering system to allow them to expand in the scientific arenas. This begs the question. We America feel that English has been the language that allowed us to expand and develop in many areas. As true as this is, the question raised is, 'does our language and our mathematics act as blockers to prevent us from seeing knowledge in other arenas that are there but our communication and calculation abilities are limited by our present language and numerical system'. The question should initiate conversation and analysis.

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