# STONEZINE 12

## THE DIGITAL COUNTERPART TO STONEXUS MAGAZINE

editor: Tomas Lipps

Cover photo: Kastro Larmena, Island of Euboea, Greece. photo: ? ?
The Temple of Jupiter, Baalbek  photo: Dibyendu Banerjee

## IN THIS EDITION:



This, like all editions of STONEZINE, can be printed on 8.5 x 14 paper.

# LITHIKOS GALLERY

## STONEWORK
## GREECE & SPAIN

*photos:*
TOMAS LIPPS

Delos, Cycladic Islands, Greece

pavement, the Parthenon, Athens, Greece

Deia, Mallorca, Balearic Islands, Spain

Barcelona, Spain, Gaudi's La Pedrera

# ENIGMATIC BA'AL BEK

*by Vincent R. Lee, architect*

Nestled at the base of the western flank of the Anti-Lebanon Mountains along that country's eastern boundary with Syria is perhaps the most perplexing, little-known and mysterious megalithic archaeological site on Earth. Located at an elevation of 3700 feet (1128m) near the headwaters of both the Orontes and Leontes Rivers, the two great spring-fed streams that nourish the region's famously fertile Bekaa Valley, Baalbek has been revered as a sacred place for millennia.

No one knows who first memorialized its spiritual power with monumental architecture, but in biblical times the Bekaa was known as the 'Valley of Lebanon,' and Early Bronze Age remains have been recovered from the bottom of a fifty-meter-deep crevice beneath the present-day ruins. Archaeologists believe this natural feature was the ancient centerpiece of a sanctuary dedicated to the Canaanite-Phoenician god Baal, from which the name Baalbek derives. All traces of this very early temple, if any, remain deeply buried beneath the work of subsequent cultures

Before 300 BCE, Alexander the Great conquered the entire region and his successors, the Ptolemies and later, the Seleucids, ruled the area until the arrival of the Romans in the time of Anthony and Cleopatra. The Greeks called the modest town that had grown around the site *Heliopolis*, City of the Sun. Octavian, soon to be Caesar Augustus, retained the name after his overthrow of Anthony at the Battle of Actium in 31 BCE

Under Augustus, the city began its rise to become one of the most important colonies in the Roman province of Syria. Located at the intersection of the main north-south and east-west roads that crisscrossed the region, Heliopolis soon became a strategic and commercial center as well as a spiritual power-place. The surrounding Bekaa valley was known as the 'breadbasket of Rome' due to its prodigious output of grains and other agricultural produce. In recognition of these virtues, Augustus early in his reign began construction there of what would become the largest temple complex in the Roman world, a work continued by all of his successors until the Christianization of the empire under Constantine in 313 CE.

This much we know, but amazingly, the classical documents say little else about this gargantuan and spectacularly elaborate project.

*All photos by the author unless otherwise noted.*
*right: The* Stone of the South. *photo: Public Domain.*

## *The three largest building blocks in the world*

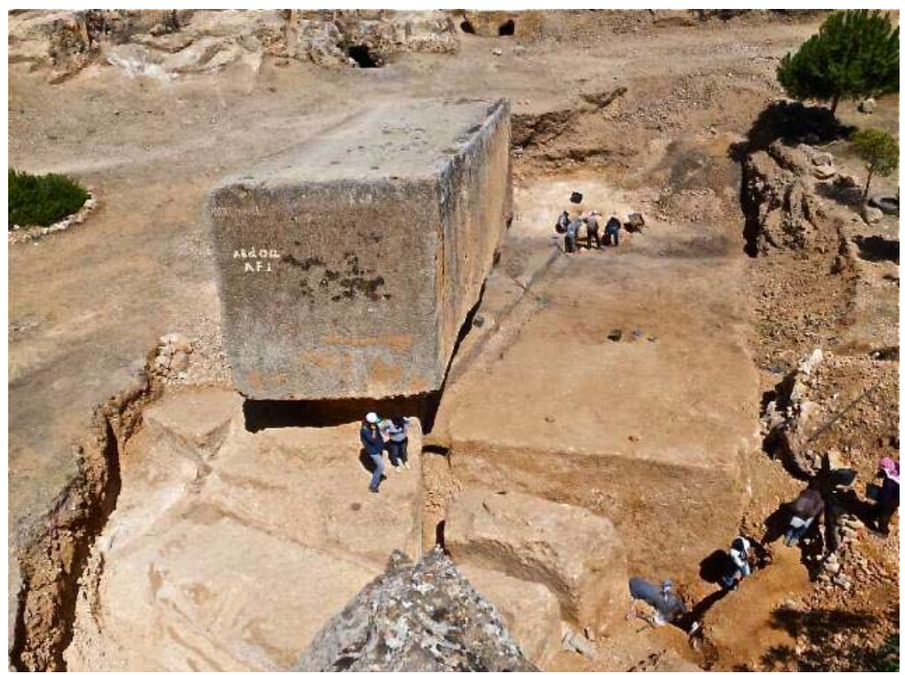
provide proof that more was planned than was ever completed.

In the quarry at Baalbek that supplied the largest of the stones for the temple mount there is a trio of mind-boggling colossi. Lying shaped but unmoved, apparently awaiting transport to join the trilithon wall is the 1200-ton (1090 mt) *Stone of the South.*

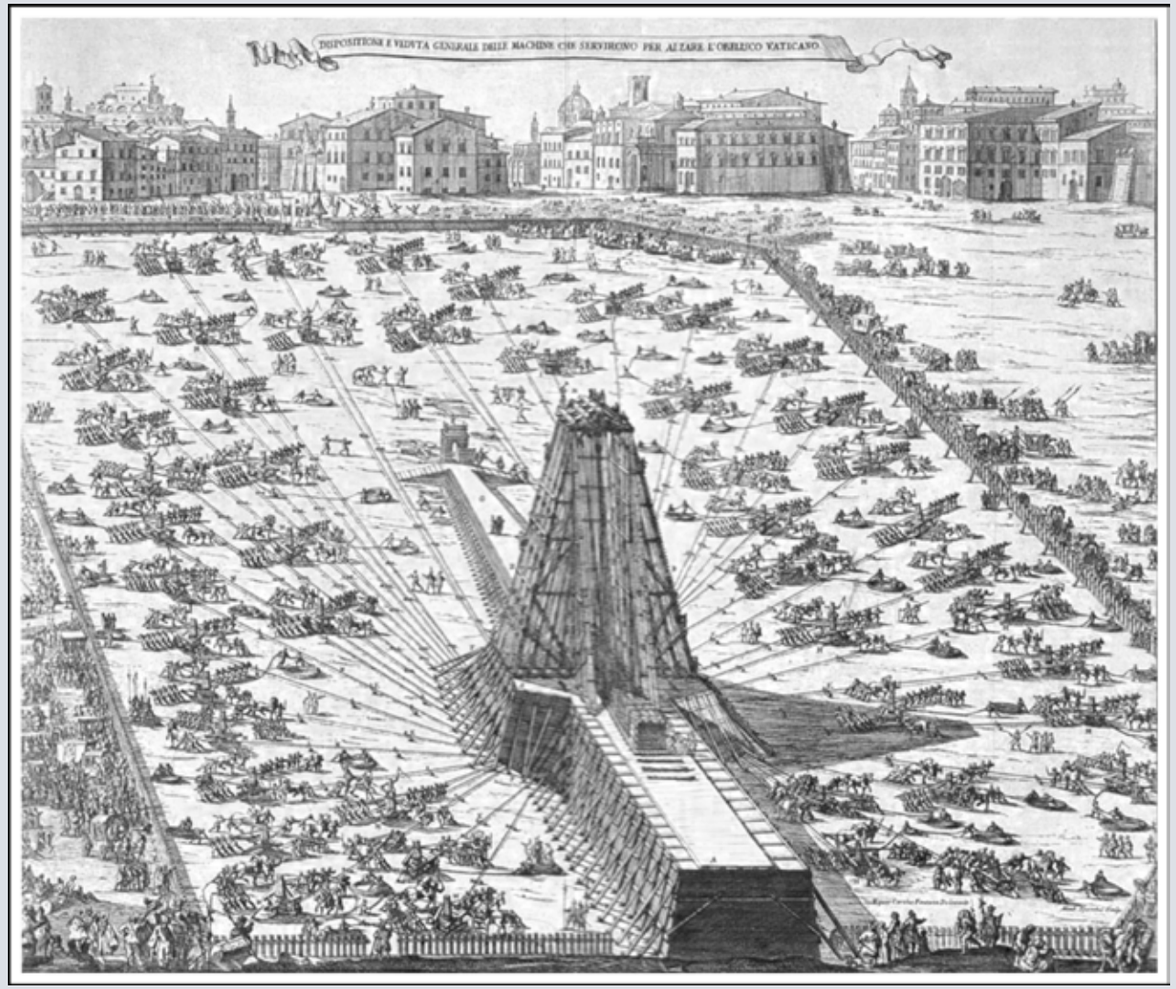
A larger block was discovered and excavated by German archaeologists in 1990; it weighed 1500 tons (1360 mt). As the vacuities on the top indicate, this quarried block itself was subjected to quarrying.

And an even larger block was discovered and partially excavated in 2014-2015, again by German archaeologists. Its weight is estimated to be nearly 1650 tons (1500 mt).

*right: The Stone of the South aka the Hajjar al-Hibla monolith.*
*below: The block discovered in 1990*
*below, right: The most recently discovered block the largest ever quarried, any time, anywhere. It is situated just below the Stone of the South.*
*photo: Deutsches Institut Archäologisches*



*View of the relocation of the 250-ton Vatican obelisk in 1585.*




## *Having configured a plausible design*

for the maxilithic structure, let's now look at the construction alternatives available to its builders. . .

Managing stones the size of those at Baalbek by hand was a daunting prospect by any means available to any of the cultures that might have done it, including the Romans. Roman technology involved moving or lifting the stones with roped windlasses attached to the stones by iron 'lewis pins' inserted into dovetail-shaped 'lewis holes' able to take perhaps 5 tons of load each. In the case of the Trilithon, at least 180 such holes would be required per block, but none remain evident on the stones today. A like number of windlasses would also be required, anchored firmly to the ground, separated to provide workspace for the many men or animals turning the wheels and relocated frequently to re-rig the ropes as the stones moved.

This could be termed the 'high-tech' option, involving sophisticated materials, tools and methods not yet known to cultures centuries earlier. We actually have good records of a similar system, used to relocate the 250-ton (227 mt) Vatican Obelisk a mere 249 feet (76 m) in 1585.
It was an colossal project, involving giant timber devices moved by hundreds of men and horses turning 42 windlasses over a huge workspace, partly cleared of buildings for the purpose. The existing maxiliths at Baalbek would have consumed 50 times as much effort and the completed enclosure utilizing the stones in the quarry and more, twice that - a possible, but unlikely scenario.

We know that the New Kingdom Egyptians manipulated like-sized objects, placing them on huge timber sleds and dragging them over roadways fitted with rollers or, more likely, greased 'sleepers' embedded into the road's surface. Let's call this the "low tech" option, since the principles involved are quite simple, applied nevertheless on a grand scale. We know that thousands of workers were employed to move the largest loads. These were, however, single monuments, not giant building blocks. The 455-ton (413 mt) obelisk of Thutmose III, stolen by Constantine, was only slightly heavier than each of the 24 blocks forming the Baalbek enclosure, and only half that of the three trilithon blocks above.

Again, as with the Roman system, it is theoretically possible that something like the Egyptian method was used, but no trace of the elaborate haul road required to move the stones from the quarry to the ruins has ever been found. Also, the mountain of fill material needed to ramp up onto to the work platform as its height increased is entirely absent. And finally, the pulling crew, grandly estimated by some at over 40,000 men, but certainly a tenth that or more, would have run out of workspace as their stone approached its destination.

It is a common flaw in many theories dealing with overland transport that they cease to work when applied to final placement of megaliths in close quarters, with no room for large gangs of handlers to work. With that in mind, a third method, so rudimentary we might call it a 'no tech' option is worth considering. It is axiomatic that the first step in almost any stone-moving project is to raise one edge off the ground. If you can't do that, your only hope is to simply drag the stone away, a virtual impossibility in most cases. Both the high and low tech options described above necessarily begin with lifting one side of the load so that it can be tumbled or levered up onto a sled of some sort. A carriage beneath the load is especially important for a finished object such as an obelisk, to prevent damage or breakage during transport.