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Olba Kazısı Serisi

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PRAEFATIO

Seleucia dergisinin sekizinci sayısını sizlere sunarken, bu yıl da yazarlarımızın değerli katkılarıyla ve zengin bir içerikle sizlere ulaşmayı amaçlamaktayız. Olba'dan gelen yeni bulgularımızı sizlerle paylaşmakta; çeşitli arkeolojik konulara yeni yaklaşım ve yorumlar getiren çalışmaları sunmaktayız.

Hadrianus'un Küçük Asya ziyaretinde geçmişin parlak başkenti Sardes'e uğrayıp uğramadığını merak ediyorsanız ya da Romalıların dev dikliltaşları Mısır'dan koparıp, imparatorluğun başkentlerine nasıl taşıdıklarını bilmek istiyorsanız; Tarsus'ta daha önce bilinmeyen bir Roma hamamı daha mı keşfedildi derseniz ya da Parion Hamamı'nın son kullanım evresi konusunda sikkeler ışığında bilgilenmek istiyorsanız, eski Anadolu toplumunda köpeğin nasıl bir rolü olduğunu arkeolojik verilerle görmek sizce ilginçse o zaman Seleucia'nın bu sayısını okumalısınız. Orta Tunç Çağı'nın Aras Boyalıları Kültürü veya Diyarbakır Aşağı Salat Kazıları konusundaki çalışmalar ilginizi çekmekteyse ya da Urfa çevresindeki Neolitik Çağ sizce ilgi çekiciyse, doğru kaynak seçmiş bulunmaktasınız.

Olba'da Akhaemenid Dönem öncesinde Yeni Babil varlığını düşündüren bir arkeolojik veri isterseniz, 2017 kazılarında akropoliste ele geçen kalsedon damga mühür ilginizi çekecektir. Kentteki Geç Antik Dönem'i yansıtan manastır kazılarında 2017'de büyük ölçüde açığa çıkarılan Kuzey Kilisesi'nin mimari ayrıntıları; bu kilisenin de içinde bulunduğu yapıların aydınlatmasında kullanılan cam kandillerin tipolojisi ya da Olba kazılarında bulunan ok uçları bağlamında kentteki askeri hareketlilik ile ilgili bilgilenmek için yine dergimizin bu sayısına bakmalısınız.

Yukarıda belirtilen çalışmaların yanısıra kitap tanıtımlarıyla da içeriği zenginleşen Seleucia'nın yayına hazırlanması aşamasında emeği geçen yazarlarımıza, Homer Kitabevi'ne ve Ayşen Boylu'ya; çalışmalarımızda sabırla bize eşlik eden Sinan Turan'a şükranlarımızı sunarız.

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PREFACE

While presenting the eighth volume of Seleucia, we hope to reach you with a rich content by the conribution of our writers. We are pleased to share our interpretations on the latest finds from Olba excavations as well as many other archaeological articles with interesting approaches.

If you are anxious to know if Hadrian visited Sardis during his travel in Asia Minor or how Romans carried huge obelisks from Egypt to the capitals of the Empire; if you want to know about the possibility of a newly-discovered bath building in Tarsus or the last phase of use of the bath at Parion; if you are interested in the role of the dogs in ancient Anatolia, you should see this issue of Seleucia. If you want to be informed about the archaeological evidence for Middle Bronze Age Aras Culture or the excavations of Aşağı Salat at Diyarbakır and the Neolithic Age of Urfa Region, this issue of Seleucia will be the right choice.

We are sure, you will be interested in the Neo-Babylonian chalcedony stamp seal found during the excavations of Olba in 2017. For being aware of the architectural details of the "Northern Church" within the monastery of Olba and for the typology of the glass lamps used for the illumination of the Late Antique interiors (including the Northern Church) in Olba as well as the military activity in Olba in light of arrow heads discovered at the site, you should refer to this issue.

In addition to the articles on above-mentioned topics, Seleucia contains a number of book reviews that will inform the readers on various valuable archaeological publications. We wish to thank our contributors for sharing their studies with us and Ayşen Boylu, owner of Homer Books for her help and support as well as Sinan Turan for his patience and assistance during process of preparation of the publication of Seleucia.

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Obelisk Bones

Diane Favro*

Dikilitaş Kemikleri

Öz

Romalıların Mısır obelisklerini yerinden kaldırarak taşımaya başlamaları MÖ 1. yüzyıl sonlarında ülkeyi egemenlikleri altına almalarıyla başlar. Romalıların bu devasa monolitleri yerlerinden alıp yeni konumlara nakletmeleri elbette ki Nil kıyısındaki bu büyük ve eski uygarlığı elde etmelerini simgeler. Aynı zamanda obelisk kaldırma işi, onların teknolojik ve lojistik becerilerinin gösterişli bir biçimde sahnelenmesi olarak da düşünülebilir. Eski Mısırlılar obelisklerini doğrudan alçak platformlar üzerine yerleştirmekteydiler. Romalılar bu yekpare taşların en büyüklerini (yükseklikleri 20 m. veya daha fazla olanlar) yüksek kaideler üzerine dört köşelerine yerleştirilen madeni veya taştan destekler vasıtasıyla yükseltmekteydiler. Küp veya yuvarlatılmış-yengeç biçimli olanları da kullanılan bu taşıyıcı desteklere genelde aşık kemiğine benzedikleri için "astragal" denmekteydi. Bu çalışma, astragalların sembolik anlam ve yaklaşımlarını olduğu kadar Roma yapı teknolojisinin dikey-kaldırma ve dört köşeli yükleme sistemlerini incelemeyi amaçlamaktadır.

Anahtar Sözcükler: Obelisk (Dikilitaş), Roma Teknolojisi, Astragal, Kaldırma Kulesi, Augustus, Theodosius.

Abstract

Once the Romans gained control of Egypt in the late first century BCE, they began to relocate obelisks. The transporting and re-erecting of such

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great monoliths obviously symbolized conquest over the ancient culture on the Nile. At the same time these acts provided bravura spectacles of engineering and logistical expertise. While the ancient Egyptians had placed obelisks directly on low platforms, the Romans instead put the largest monoliths (over 20 m tall) on four metal or stone supports situated at the corners of tall pedestals. Generically called astragals after examples shaped like knucklebones, these small supporting elements also took the form of cubes and crabs. This paper explores the meaning of astragals, considering not only their symbolic associations, but also their essential role in Roman vertical-lift and four-point load systems of engineering.

Keywords: Obelisk, Roman Engineering, Astragal, Lifting Towers, Augustus, Theodosius.

Egyptian obelisks are impressive architectural forms. Carved from dense, hard granite, the monoliths rise to great heights, with the largest over 30 meters in height. From a square plan, the stone tapers to a crowning pyramidal form often originally encased in gold; hieroglyphs on the four sides commemorate the gods and rulers. First created in the third millennium BCE to honor solar deities, these stones frequently stood as paired sentinels in front of large temple complexes. Preoccupied with the religious associations of obelisks, the Egyptians did not emphasize the effort involved in their conveyance and erection. Once the Romans occupied Egypt, they transported and re-erected the ancient memorials to overtly express imperial power and engineering bravura. Shortly after defeating Cleopatra in 31 BCE, Octavian (later titled Augustus) ordered a gigantic obelisk (approximately 25.5 m high) to be transported 260 km from the religious center of Heliopolis near the Nile to a new Roman-style forum at Alexandria on the coast. The act was calculated. Not only did the gesture underscore Octavian's military success achieved with the help of the sun god Apollo, but it also highlighted the technical and logistical prowess of Egypt's new Roman rulers. After all, it had been centuries since any Egyptian had seen the complicated planning and maneuvering of an enormous monolith on special barges along the Nile, or the labor-intensive re-erection of a stone weighing around 350 tons. In the following years Octavian transported at least six obelisks to Rome. The spectacle of shipping and lifting the monoliths impressed residents in the Imperial capital and observers all along their 2500-km

journey. After one trip Octavian Augustus put the specially-designed obelisk ship on permanent display at the port of Puteoli where it drew crowds of tourists. For the Romans, the engineering skills demanded by moving monoliths were bred in the "bones" of the obelisks metaphorically and literally.

Discovering obelisk bones

Around 40 CE a Julio-Claudian emperor (either Nero or Caligula) brought the obelisk erected by Augustus from Alexandria to Rome. Placed in Nero's circus, it remained standing on the spot until 1586 when Pope Sixtus V decided to move it 275m northwest, to rise on axis with the façade of St. Peter's Basilica. Following the traditions of his ancient Roman forerunners, the pope's architect Domenico Fontana developed elaborate plans for the relocation, promoting the event with spectacles and publications. The first step was to lift the obelisk from its base. Immediately a complication occurred. The obelisk remained firmly connected to the stone base by four intermediary bronze spacers shaped like knucklebones with metal dowels fitted into the stone base and obelisk bottom (**fig. 1**). Each weighed approximately 270 kilograms. Located at the corners of the base, these relatively small "bones" (called *ossi* by Fontana) carried the entire load of the obelisk. As the hoist lifted the so-called Vatican Obelisk, one "bone" was removed and taken to the pope, who Fontana records "showed great joy"[1]. The other "bones" proved to be more recalcitrant. To prevent lateral movement the Romans had secured the bronze dowels with molten lead. Fontana's team had to chisel away the surrounding stone to loosen the connection, a process that took four days and four nights. Frustrated by this delay, the pope's architect disparagingly dubbed the bronze elements "large dumplings" (*gnoccoli*), though he clearly understood their essential role in supporting the large monolith. Fontanta reused them in the new location, but made sure they were hidden behind four newly cast bronze lions.

While hundreds of books have been written about obelisks, scholarship has been limited about their supporting "bones." This lacuna is understandable. Applied primarily in the erection of the largest obelisks, few original examples exist. In the post-antique periods, the high value of bronze promoted the pilfering of all metal elements (clamps, dowels,

1 Fontana 1590, 15.

lead casings, etc) from classical buildings. In the case of obelisks, the removal of the "bones" at the corners undoubtedly caused many monoliths to fall, damaging the supports and obscuring traces of their placement. The absence of a uniform terminology for the bronze spacers has also hampered research. The shape of those under the Vatican obelisk emulated knucklebones as documented in several drawings made before its relocation (**fig. 1, 3**). As early as the fourth millennium BCE, knucklebones (*astragaloi* or astragals) from sheep and goats were used as dice in children's games; they became symbols of good luck, carried as amulets and appearing in ancient art and literature. The term astragal has become a generic term for the metal supports for obelisks, often leading to confusion. Ancient authors including Vitruvius (*de Arch.*3.5.3) also called architectural moldings astragals. The situation is further complicated by the variations in their form. Roman obelisk "bones" have been found in the shape of crabs and simple cubes as well as knucklebones, while proliferating Renaissance examples include balls, skulls, and turtles.

Obelisk bones at work

Given the association with luck, the inclusion of astragals to support a towering obelisk seems evocative. But these intermediate supports were functional responses to Roman advances in building technology. The ancient Egyptians transported obelisks with barges and simple sledges pulled by hundreds of laborers. To raise the heavy forms, they piled up sand adjacent to the pedestal, pulling the lower end up the ramp. They then gradually removed the sand under the obelisk's bottom, causing the monolith to slide down until a bottom edge fit into a groove in the pedestal. By pulling on ropes around the upper part of the shaft, laborers then pivoted the obelisk into a standing position[2]. The sight of innumerable workers pulling and digging was impressive, underscoring brute human power and the natural force of gravity. In contrast, Roman spectacles of lifting emphasized scientific knowledge, sophisticated equipment, and organizational proficiency. By the first century BCE, engineering tools and techniques had advanced significantly in the Roman world. Over generations of field experience, especially in the military sphere, the Romans had developed refined lifting technologies including winches, various types of cranes, capstans, and pulleys. For example, they adapted

2 Curran *et al* 2009, 31-2.

tall siege towers - like that described as 53 m in height by Vitruvius (*de Arch.* 10.13.5) - to raise and lower large architectural elements vertically[3]. In the fourth century CE Ammianus Marcellinus provided a detailed word picture of raising an obelisk on the *spina* (median) of the Circus Maximus in Rome:

> …it was (a project people) thought could be accomplished only with great difficulty, perhaps not at all. But it was done in the following manner: to tall beams which were brought and raised on end (so that you would see a very grove of derricks) were fastened long and heavy ropes in the likeness of a manifold web hiding the sky with their excessive numbers. To these was attached that veritable mountain engraved over with written characters, and it was gradually drawn up on high through the empty air, and after hanging for a long time, while many thousand men turned wheels resembling millstones, it was finally placed (Amm. *Rerum Gestum* 17.4.15)[4].

The careful labelling of individual parts "with written characters," the organizing of numerous workers simultaneously turning capstans (much as Fontana described for moving the Vatican obelisk centuries later; **fig. 2**), and the bravura use of wood scaffolding all reflect the logistical and engineering skills gained from military experience.

The Roman vertical-lift method of raising large obelisks required continuous support across the monolith's bottom during most of the process. Ultimately, of course, the great weight of the obelisk had to be transferred to the base through direct contact. Roman engineers deployed supporting wedges and strong straps of woven rope or metal that crossed at right angles under the obelisk leaving unencumbered space at the four corners for connection to the astragals. As an obelisk was lowered workers carefully aligned the metal dowels protruding from the "bones" into the four mortises in the monolith's bottom; gradually the heavy weight was completely moved from the lifting apparatus to the astragals. Supporting a huge, vertical stone weighing several hundred tons on four-points rather than the entire base at first glance seems counter-intuitive, but was grounded by long established traditions. As early as the Old Kingdom in Egypt, stone carvers exploited the cost-effective technique of *anathyrosis* (modern term) for ashlar construction, a method further

3 Lancaster 1999, 427-37.

4 Translation by John C. Rolfe 1935. See also Lewis 1984, 97-101.

refined by Greek and Roman builders[5]. With *anathyrosis* adjacent stone blocks make contact only along relatively narrow, highly polished, raised bands around their edges, thus ensuring tight joints in compression and keeping out damaging water. The creation of perfectly flat surfaces is time-consuming and costly, especially with such hard stones like the granite used for obelisks; any small bump or imperfection in the surface has the potential to destabilize the construction, leading to oscillation of the tall stone spire[6]. The point load on the four "bones" ensured a firm contact, while the relatively short leaded bronze dowels construction the obelisk and base further restricted lateral movement.[7]. Equally important, the four contact points facilitated slight adjustments; shims inserted at the astragals allowed workers to attain a precise vertical alignment using a plumb bob, as Fontana recorded was done for the Vatican obelisk.

The Visual Impact of bones

The original Roman visual impact of the obelisk bones is difficult to assess, especially without eyewitness accounts. Though obelisks were frequently mentioned in ancient texts, specific mention of obelisk "bones" comes centuries later. In part this lack may be due to viewing context. To showcase vertical lift technology, the Romans added to the height of Egyptian obelisks by placing them on towering pedestals. As a result, viewers had to stand far back from the monument and at an elevated position in order to see through the opening beneath the unsupported segments of a monolith's bottom (**fig. 3**)[8]. Seen from a distance, the relatively small open space created by the astragals appears as a shadow line whose impact is dwarfed by the visual dominance of the towering monolith as seen with a New York recreation of an obelisk with Roman "bones" (**fig. 6**).

5 Hahn 2012:150-52.

6 Several historical sources record obelisks moving in the winds as with the engaging story of people putting nuts in fissures on the Theodosian obelisk and waiting for the winds to crack them open; Iversen 1968, 20. In the nineteenth century the engineer Gorringe carefully studied wind-loads and earthquake resistance for the New York obelisk; Gorringe 1885, 48. A recent report affirms that red granite commonly used for obelisks could withstand most earthquake distortion, provided the load was stable; Rashwan and Darwish 2017, 12-22.

7 Ćurčic 1993:126-27.

8 In the medieval period stories circulated that Christians who managed to crawl under the Vatican Obelisk would have their sins forgiven, perhaps an appropriate reward for climbing up the tall pedestal (c. 6.7 m) and squeezing through the small space (less than .5 m high) between the astragals and the obelisk base; Gregorius 1987, 35.

In the first century BCE the first emperor Augustus moved a pair of monoliths from Heliopolis to Alexandria to embellish a new complex honoring Julius Caesar[9]. Erected with lifting towers, each obelisk was lowered on to astragals in the form of four bronze sea crabs alluding to both Apollo and the astrological sign of Cancer which was in ascendancy at the conception of Augustus[10]. Greek and Latin inscriptions on the crabs named not only Augustus and the prefect of Egypt Barbarus, but also the architect Pontius in clear appreciation of the engineering challenges associated with moving and raising the monoliths. In 1877, the Khedive of Egypt gave one of these obelisks to the United States in exchange for cash and neutrality in the face of imperialist actions by European countries. After removing the dirt from around the bottom of the obelisk, the American excavators discovered the lower corners had been roughly chiseled away by scavengers who had removed two of the bronze supports, and filled the voids with rough stones to keep the monument from falling. The other two crabs remained *in situ* (**fig. 4**). These had 12"-long metal dowels that secured the monolith to its base. Each was notched to ensure a tight bond when lead was poured into the mortises, a design feature which made removal of the dowels extremely arduous (**fig. 5**). On arrival in New York, local craftsmen cast bronze replicas of the sea crabs weighing 418 kg to support the obelisk which was re-erected in Central Park. The original sea crabs went on display in the nearby Metropolitan Museum of Art.

The New York obelisk (also known as Cleopatra's Needle) closely conveys the original appearance of a Roman obelisk display. The bronze sea crabs carry the obelisk's weight, but their load-bearing role is visually minimized (**fig. 6**). Like those used by Fontana, the bands or slings used by the Romans to support the obelisk during vertical lowering on to the base were not especially thick and thus did not require much space. The architect Pontius had used "bones" approximately 20 cm in height[11]. As

9 These two obelisks are different from the one Augustus first moved mentioned above; Curran *et al* 2009, 36-40.

10 Crabs had many potent associations, including with Apollo (see above); Gorringe 1885, 75-76.

11 In 1877 Waynman Dixon recorded a height of 8" (20.3 cm) between the base and obelisk bottom; Birch 1877, 487, 494-95. This height corresponds to sea crab #81.2.1 in the Metropolitan Museum of Art; the other version, # 81.2.2, is listed as 37 cm, perhaps due to deformation over the years, damage during removal, inclusion of the dowel height; Birch 1877, 494-95; Gorringe 1885, 74-75.

a result the open height under the obelisk was too narrow to allow light to easily pass under the obelisk's 2.9m-square base. A band of shadow obscured the carrying function of the crab-shaped "bones." Looking up at the NY obelisk viewers' eyes are drawn to the claws of the rambunctious sea crabs who seem to crawl out from under the towering 21-meter high monolith. In addition to other meanings, this engaging image symbolizes both Augustus' conquest over land and sea and the architect-engineer's ability to survive the challenge of raising a 200-ton monolith.

Despite obvious expertise with the transport and lifting of heavy stones, the Romans were not always successful. In the fourth century two huge obelisks (18.5 m) from Karnak lay on the shores of Alexandria, brought to the city for transport by either Constantine or Constantius II (Safran 1993). The latter moved one of the pair to Rome in 357. The other languished on the shores of Egypt until shipped to Constantinople, probably by Theodosius who placed it on the *spina* of the Hippodrome (*Sultanahmet Meydani*) in 390 CE where it still stands (**fig. 7**)[12]. The two inscriptions on the obelisk's base refer to the process of erecting the great stone. The Greek version reads:

> This column with four sides which lay on the earth, **only the emperor Theodosius dared to lift again its burden**; Proculus (prefect of the city)[13] was invited to execute his order; and this great column stood up in 32 days.

In the slightly longer Latin inscription on the opposite side facing the royal box of the Hippodrome the obelisk speaks in the first person:

> Though formerly **I opposed resistance**, I was ordered to obey the serene masters and to carry their palm, once the tyrants had been overcome. All things yield to Theodosius and to his everlasting descendants. This is true of me too – I was **mastered and overcome** in three times ten days and raised towards the upper air, under Proculus" [my emphases][14].

12 Iverson 2 1968, 11-25.

13 Proculus suffered *damnatio memoriae* and his name on the obelisk base was chiseled away; in a unique reversal, he was posthumously pardoned and his name re-inscribed; Curran *et al* 2009, 56-58.

14 Safran explains the discrepancy in number of days as due to the different audiences. The Greek text addressed less educated locals, while the Latin inscription on the side of the royal box addressed elite readers familiar with such Vergilian phrases as "three times ten days;" Safran 1993, 420-21.

Apparently the raising of this gigantic obelisk did not go well. In addition to laying in wait for years at Alexandria, the stone may have been brought to Constantinople before Theodosius where it languished in a horizontal position during the turbulent years of the late fourth century, a dispiriting symbol of contemporary political unrest[15]. Eventually a base was prepared for its erection measuring approximately 2.86 m square with four granite cubes as astragals, possibly connected to the marble with metal dowels. This size platform was appropriate for the estimated footprint of the monolith at its original height of c. 34.7m, as calculated from evidence from its setting in Egypt and comparison to its companion stone in Rome (Lateran Obelisk)[16]. At almost .5 m in height, the astragal cubes were taller than most known Roman examples, perhaps because the great size of this obelisk required thicker slings during the lifting process.

Tragically, at this point in the relocation some unknown disaster occurred resulting in the loss of the monolith's lower third; the recut erected obelisk shaft measures 19.5 m in height. The date of this disaster and the name of the patron at the time remain unknown. What can be asserted is that Theodosius chose to erect the shortened obelisk. After defeating Maximus Magnus, he was anxious to commemorate his triumph by daring to raise the obelisk. To accommodate the smaller bottom of the newly cut obelisk his architect-engineer placed a tall second base atop the existing pedestal; this had uneven sides averaging 2.37 m in length, a size appropriate for the smaller footprint of the shortened monolith[17]. A flat section around the top of the first base was cut away, leaving the central rectangular portion about 55 cm higher with notches at the corners of the raised central rectangle. The four granite cubes were relocated to the notches where they made a stable four-point connection with the upper base, thus continuing to perform as true astragals supporting the heavy loads above (**fig. 8**)[18]. The fluted section of the lower marble base

15 Even the great obelisk-mover Augustus had hesitated to deal with this monolith, "overawed by the difficulties caused by its size" (Amm. *Rerum Gestum* 17.4.12). The emperor Julian the Apostate (ruled 361-363) wrote that Constantine built a boat to carry this huge stone, but it remained land bound, "thrown down … on a beach as though it were entirely worthless;" when Julian ordered the Alexandrians to bring the obelisk to Constantinople, they disobeyed; Curran *et al* 2009, 55-56; Gorringe 1885, 124; Kiilerich 1998, 22-24.

16 Bardill 2010, 155-164.

17 The relationship between the original and recut sizes of the obelisk bottom and the measurements of the two bases was first noted by A. Effenberger; Safran 1993, 410-11; Bardill 2010, 155-64; Kiilerich 1998, 21.

18 Due to the re-cutting of the lower base's upper surface, it cannot be determined if the granite blocks were once attached with metal dowels.

left intact between these supports prevented viewing between the cubes, though the distinctly different material of the granite "bones" underscored their important structural role. A second set touted a more explicit role in directly carrying the obelisk. On top of the upper marble base four new bronze (possibly gilded) cubes with leveling shims proudly supported the monolith. The open space (c .5 m) between them emphasized their independent role in supporting the towering obelisk[19]. At around the same time the earlier lower base received the two inscriptions as well as the famous relief of obelisk transport (**fig. 9**).

As noted above, the inscription indicates the monolith had shown "resistance." The comment may refer to the accident that damaged the obelisk, or to another event recalled in an urban legend. In the sixteenth century (years before Fontana's moving of the Vatican obelisk) Ogier Ghiselin de Busbecq, diplomat for the Austrian court, described a problem that had occurred when erecting Theodosius' obelisk. According to local Greeks, the elaborate capstans stalled holding the giant stone a few inches below the bronze astragals, leaving spectators greatly distressed. The story continues,

> But the architect was not in the least alarmed, and profiting by one of nature's secrets, he ordered large supplies of water to be brought. With this for several hours the machine was drenched. As the ropes, by which the obelisk was suspended, got wet, they gradually contracted, and of course became shorter, so that the obelisk was raised higher and **placed on the astragals (bones)**, amid the cheers and admiration of the crowd (my emphasis)[20].

It is tempting to see the carved representation of moving the obelisk in a relief on the lower base as a counter to this tale. The scene is autobiographical for the obelisk. It clearly occurs in the Hippodrome whose portico is visible in the background[21]. The hieroglyphics depicted on the monolith mirror those on the obelisk in its shortened state, specifically showing those on the northeast side directly above the relief. The

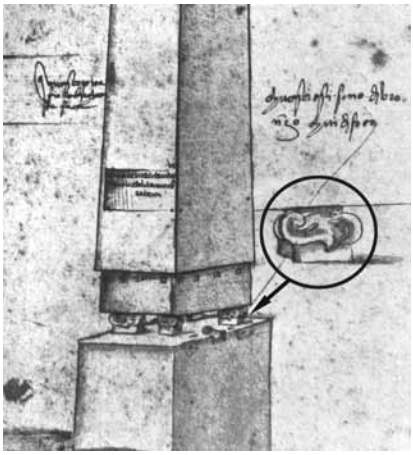
19 Hooks on the bronze cubes may have been used for ornaments such as garlands. Bronze shims were added on the east corner to level the obelisk. Since these show no evidence of melting, the hooks must have been welded in place before the obelisk's alignment was adjusted; Bruns 1935, 15 abb. 21-24.

20 Busbecq 1581, 127. The story of putting water on the ropes was later erroneously associated with Vatican Obelisk, though it is not mentioned by Fontana; Gorringe 1885, 116-17.

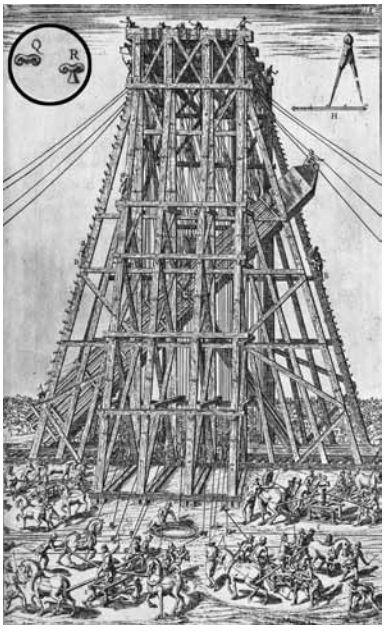
21 Kiilerich 1998, 69-72.

engaging carved vignette depicts the successful horizontal transport of the shortened obelisk, with the ropes on the machines (capstans) all working smoothly with no malfunctions to hinder the building process.

Construction scenes are known in Roman art, serving as overt celebrations of Roman pride in technical and logistical expertise. However, they most frequently occur in private art and settings such as on tombs. The inclusion on a major monument in a prominent public location reinforces the Roman valuation of construction spectacles and specifically the challenges overcome in this particular project. In its completed form, the obelisk of Theodosius celebrates, rather than obscures, the difficulties faced when erecting the huge obelisk. The cubic supports are essential to the message. The two sets - granite and bronze - are relatively small in size in relation to the overall monument, but draw attention for their color and distinctive purpose, standing as proud records of both negative and positive aspects of the building history. The lower granite cubes with the space between them purposefully filled with marble fluting serve as remembered skeletal remains of the first attempt to raise the obelisk. They materially contrast explicitly with the upper bronze astragals proudly holding the obelisk a half-meter above the upper base, allowing light and views to pass under the towering needle. In 1533 the Flemish artist Pieter Coecke van Aelst spent a year in Constantinople and subsequently created a detailed image of Süleyman the Magnificent processing through the Hippodrome (**fig. 10**). Despite close familiarity with the obelisk of Theodosius, he took liberties depicting the base. Van Aelst transformed the cubes back into their elemental, signature form of astragals as if affirming the belief that even the largest body will not stand unless the smallest bone is in place.



1. Detail of a drawing of the Vatican Obelisk attributed to Peruzzi (c 1505) showing an enlarged depiction of a knucklebone-shaped support (circled); Musée Bonnat, Inv. 1242.



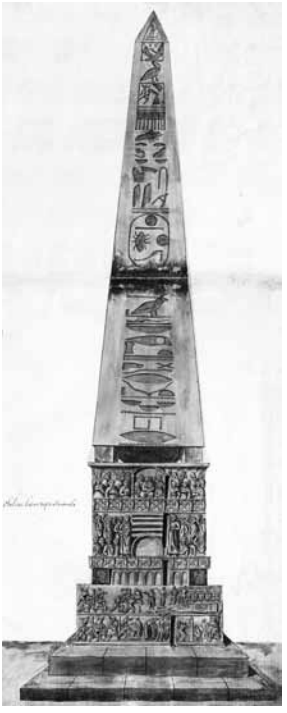
2. Lifting tower for the Vatican Obelisk with inset circle showing astragals (Q, R) from plate 15, Domenico Fontana 1590, 19.

3. View of Vatican Obelisk before 1590, Anonymous, from *Speculum Romanae Magnificentiae*, The Metropolitan Museum of Art, 17.50.19-118.

4. New York Obelisk *in situ* in Alexandria, Egypt; Gorringe 1885 plate IV.

5. Bronze sea crab shaped astragals with dowels, New York Obelisk; Gorringe 1885, plate V.

6. New york Obelisk, Central Park, 2018.



7. Northeast side of Theodosian Obelisk, Freshfield Album 1574, Trinity College, Cambridge.

9. Obelisk transport using capstans, relief on bottom base, Northeast face, Theodosian Obelisk, Istanbul

8. Base of Theodosius' Obelisk in Istanbul; photograph by Ani Nalbantoğlu.

10. Procession of Sultan Süleyman through the Hippodrome, print after Pieter Coecke van Aelst 1553, The Metropolitan Museum of Art, 28.85.7a, b.

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