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► **To cite this version:**

Pauline Ducret. The Restoration of the Columns of the Templum Castoris during Verres' Praetorship: Machina and Organisation of the Building Site. *Arqueología de la construcción V. Man-made materials, engineering and infrastructure* (Oxford, University of Oxford, Ioannou Center, 11-12/05/2015), *Anejos del AEspA*, pp.201-208, 2016. <hal-03955452>

HAL Id: hal-03955452

<https://hal.science/hal-03955452v1>

Submitted on 4 Dec 2024

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THE RESTORATION OF THE COLUMNS OF THE *TEMPLUM CASTORIS* DURING VERRES' PRAETORSHIP: THE MACHINA AND ORGANISATION OF THE BUILDING SITE

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ABSTRACT: During his praetorship, Verres was in charge of reviewing the restoration work of the temple of the Castores in the *Forum Romanum*. As he required the builders to straighten some columns, a new building site was initiated. According to Cicero, the work was done by the use of a “*machina*” which allowed the builders to have these columns taken down and replaced. The aim of this study is to figure out which kind of machine was used there, a machine which had to be more complex than the ones described in theoretical texts like Vitruvius’ *De Architectura*, and, furthermore, to understand how the use of such a machine impacted the organisation of the building site: it appears that a specialised team was specifically employed to supply and use the machine, and this particularity may have changed the terms of the contract with the builders.

KEYWORDS: Roma, Roman Republic; Temple of the Castores; Cicero; Machine; Building site; Skilled workers.

RESUMEN: Durante su pretura, Verres se encargaba de la revisión de los trabajos de restauración del templo de los Castores en el Foro Romano. Tras su requerimiento a los constructores para enderezar algunas columnas, se inició una nueva obra de construcción. Según Cicerón, el trabajo se realizó con el uso de una *machina* que permitió a los constructores levantar estas columnas y reemplazarlas. El objetivo de este estudio es averiguar qué tipo de máquina se utilizó en la obra, una máquina que tuvo que ser más compleja de la que se describen en los textos teóricos como el *De Architectura* de Vitruvio. Por otra parte, entender cómo el uso de esta máquina afectaba la organización de la obra: es probable que un equipo especializado se empleara específicamente para el suministro y el uso de la máquina, particularidad que puede haber cambiado los términos del contrato con los constructores.

PALABRAS CLAVE: Roma, República; Templo de los Castores; Cicerón; Máquina; Obra; Mano de obra especializada.

Very little literary evidence exists regarding how machines were used for construction during the Roman period, and even less about how these building sites were organised. Vitruvius and Hero describe various types of lifting machines which can be used in construction, but these remain at a theoretical level¹. Only Cicero offers a brief de-

¹ Vitruvius devotes the tenth book of his *De Architectura* to the use and construction of machines, with a special chapter on lifting machines. As for Hero of Alexandria, he describes in his *Mechanica* different ways of lifting heavy objects.

scription of the effective use of a “machine” in a building context, in his Second Speech against Verres².

During his praetorship, Verres was in charge of checking the restoration work on the Temple of the Castores, in the *Forum Romanum*. In 74 BC, the Temple of the Castores currently standing was the second version of the temple, which L. Caecilius

² Cicero, *Second Speech against Verres. 1st Book: the Urban Praetorship*, L-LVII, 130-150.

Metellus Dalmaticus had rebuilt in 117 BC. According to Cicero, when Verres checked the work on this temple, the restoration was finished and the work of high quality. Verres, however, decided to reject it and to require new work, allegedly to make some of the columns plumb. This actually provided an occasion for one of the numerous extortions committed by Verres. That is why Cicero relates in some detail this restoration work on the columns, giving us an example of a machine being used in a building context.

THE WORK AND THE USE OF THE *MACHINA*

According to Cicero, the purpose of this new work was both to make four of the columns of the temple plumb, and also to re-whiten them:

Etenim quid erat operis? Id quod vos vidistis. Omnes illae columnae, quas dealbatas videtis, machina apposita, nulla impensa deiectae iisdemque lapidibus repositae sunt.

How much, after all, was there to do? Exactly what you yourselves, gentlemen, saw done. All these columns, that you can see freshly whitened, were taken down and replaced by means of a machine leaning against them, without further expense and with the same stones³.

Nielsen, who excavated and studied the Republican temple, suggests that these could have been columns from the western colonnade (fig. 1), as the temple was built on a swampy area and could have sunk towards the north-west (Nielsen 1992: 114).

We may be able to identify even more precisely which columns were restored. The expression “*quas dealbatas videtis*” (“*that you can now see freshly whitened*”) might simply refer to the fact that the Senators used to see these columns – belonging to one of the most important temples of the republican *Forum Romanum* – almost daily, but, had the trial not been cancelled, the members of the jury would have been sitting in the tribunal of this particular temple when listening to Cicero’s speech; thus, we understand from this expression that Cicero wanted to show to the *Patres* the exact columns which had been restored. Only the

first columns of the north-west colonnade were not hidden by the wall of the *cella* and so visible to the Senators during the speech. The columns that were restored were therefore probably the four first ones.

Cicero insists that the main task for the builders in this work was to remove and reset three of these columns, stone by stone, which implied the use of a special machine. To get an idea of the type of machine which could have been used in this work, we need to evaluate the average weight of each “stone”. Precise information about the columns of the Metellan temple is missing, but we can compare our temple with that built in Cora around 100 BC which, according to Nielsen, reflected the temple at Rome, although it was smaller in size (Nielsen 1992: 114 and 124). The columns of the Cora temple were 99 cm in diameter, and 8.70 m high; they were Corinthian columns made of travertine, as probably were those of the Metellan temple at Rome.

We can thus calculate the minimum weight that the machine had to lift (fig. 2). The columns probably exceeded 1 m in diameter, and were at least 9 m high. That means that each column weighed at least 17 tons. If the columns were monolithic, the machine had thus to be able to lift a little this weight. However, the text implies that the columns were not monolithic but made of several drums (we do not know the exact number). So, for example, if they were made of three different drums, that would have meant that the minimum weight to lift was about 5.7 t; and with a maximum of six drums, the weight of each stone would have been 2.8 t.

These are only estimated figures, but they allow us to assess what kind of machine the builders could have used. As a matter of fact, Vitruvius provides a description of three different categories of lifting machine used in construction. According to Ph. Fleury, the only one of these which could have lifted such heavy loads, would have been a crane with at least a double hoisting cable and a drum or treadmill (Fleury 1993: 96-112). This may be the type of machine being used here, even if we cannot be sure about this point due to the lack of evidence on this subject.

However, other difficulties remain. This kind of machine could lift heavy loads, but required a lot of space to be operated. First of all, several cables had to be fixed into the ground for the machine, which could have been problematic in

³ Cicero, 2 *Verr.* I, LV, 145. All translations are freely adapted from the Loeb edition.

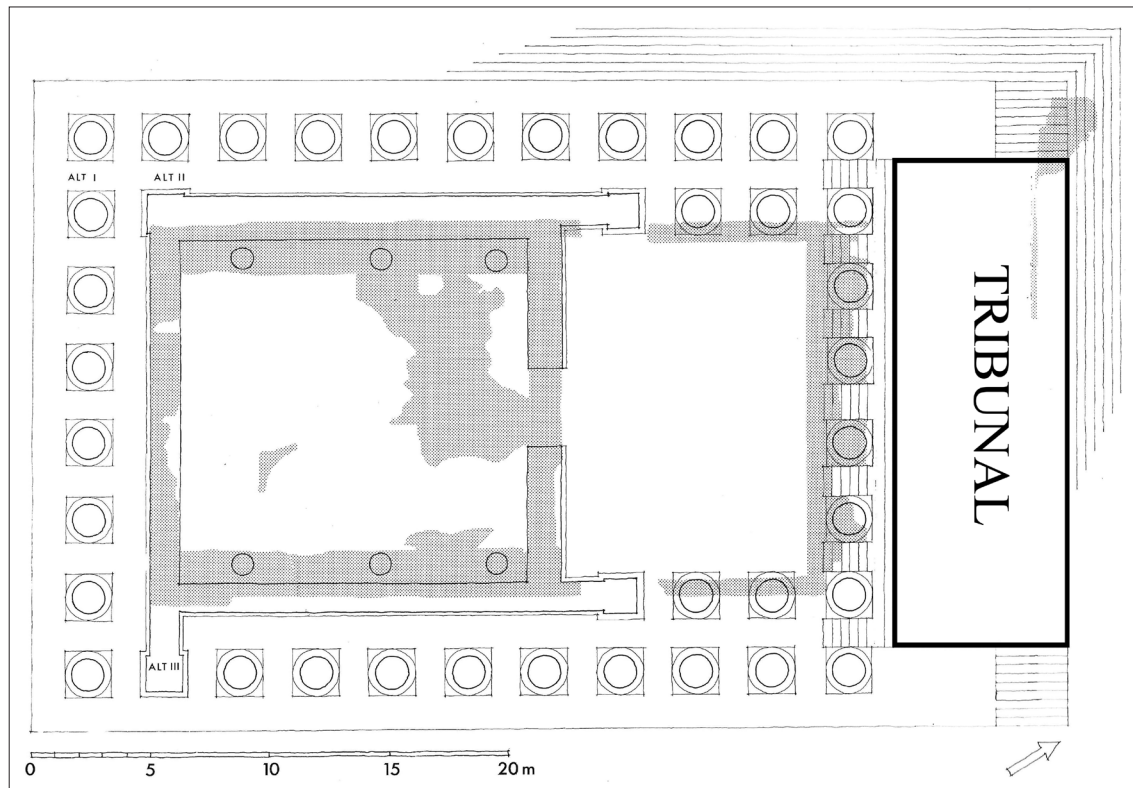


Fig. 1. The late republican Temple of the Castores (Nielsen 1992: 114).

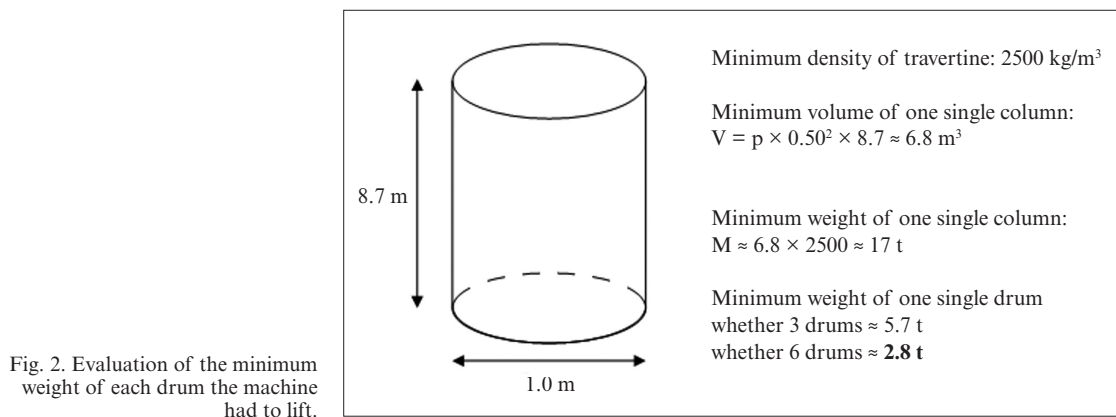


Fig. 2. Evaluation of the minimum weight of each drum the machine had to lift.

such a busy area as the forum. Even more problematic may have been the probable continued existence of an entablature and the roof of the colonnade, which would have prevented the stones from being placed vertically directly onto the top of the columns by the machine. The block and tackle cannot have been anywhere but above the lifted stone, so that we can hardly imagine the last drums being placed between the rest of the column and the roof (or the archi-

trave); unless the “*machina*” was not only a machine but a whole system combining a crane with shoring and scaffolding. The stones could have been first lifted up to the right level by the machine and then, thanks to the scaffolding, moved horizontally to their exact place in the column, while the shoring was maintaining the rest of the column. Finally, the scaffolding could have been used by the plasterers who had to stucco the four columns once plumbed. In short,

this restoration work required a highly complex machine, even if we do not know what it was exactly, and the workers had to adapt it to suit the constraints of the site. Therefore, only workers with specific skills could have set and used such a machine.

A TEAM SPECIALISED IN THE USE OF THE “MACHINE”

The text implies that a team was specifically employed to work with the machine:

[...] *tantum operis in ista locatione fuit quantum paucae operae fabrorum mercedis tulerunt, et manuspretium machinae.*

[...] there was no more in this contract than the wage of some workers and the cost of the skilled labour for the machine⁴.

Cicero clearly differentiates two main costs related to the builder: the salary of some “*fabri*”, probably mainly masons and plasterers, and the labour costs linked to the machine. The former could have been day labourers, since they seem to have been paid separately (*mercedis fabrorum*) but the latter were paid altogether (*manuspretium*). Thus, they were probably a team, perhaps from a workshop specialised in the use of machines in a construction context.

In fact, another text by Cicero implies the existence of such workshop teams specialised in specific building tasks:

Cillonem arcessieram Venafro, sed eo ipso die quattuor eius consertos et discipulos Venafri cuniculus oppresserat.

I had sent for Cillo from Venafrum, but, that very day at Venafrum, a tunnel had fallen in, crushing four of his fellows and pupils⁵.

We are in a private context, as Cicero is writing to his brother Quintus about one of his brother’s properties. In this villa, Cicero and Quintus are planning to build an aqueduct, and the man referred to as Cillo was clearly summoned by the orator for this purpose. However, the brothers had already contracted with a builder for the

whole work⁶. Therefore, Cillo’s must have been a secondary role, and he was probably employed to undertake only part of these works. His team seems to have been digging a tunnel in Venafrum when the accident occurred; they could thus have been engaged by Cicero and Quintus for the same kind of task, probably to execute the dug parts of the aqueduct. Furthermore, Cicero mentions “*conservi*” and “*discipuli*” working with Cillo. The first term implies that they were all slaves, including Cillo himself, belonging to the same *familia*; as for the second one, which refers to pupils formed by Cillo and his companions, it shows that the workshop was organised under a strict hierarchy. Cillo was thus in charge of a team of skilled slaves belonging to an owner who does not appear in our text. On the contrary, Cicero seems to have dealt directly with Cillo without asking the permission of his master but we cannot know from this text alone if they were directly employed by Quintus, or lent or let to him by the owner⁷.

Concerning the work on the Temple of the Castores, the team in charge of the machine could have been quite comparable to Cillo’s workshop, although we have no information about the workers’ status. Indeed, both of these teams were employed for specific tasks on a much bigger building site; Cillo’s team was specialised in digging tasks, whereas that employed for the Temple of the Castores may have specialised in building machines. As a matter of fact, the machine was provided by this specific team, as Cicero highlights that no timber was supplied by the main builder:

Nam illo non saxum, non materies advecta est.

That was all: there was no stone and no timber brought there⁸.

That means that the workshop had its own machines and scaffolding, which were brought to the building sites where they were erected according to the specific constraints of the work. Therefore the specialised workshop probably supplied both the machine and the labour.

⁶ This builder, employed as a *redemptor* by Cicero’s brother, was named Mescidius. Cicero cites him twice in this letter, both times regarding the construction of a private aqueduct, but in two different villas (*Q. fr.*, III, 1, 1-3).

⁷ We have a similar case in *Att.*, XIV, 3, 1: Cicero writes in this letter that he is awaiting an architect named Corumbus in his Tusculan villa where work was then in progress. This Corumbus is one of Cicero’s friends’ slaves.

⁸ *Cic.*, 2 *Verr.* I, LV. 147.

⁴ *Cic.*, 2 *Verr.* I, LV. 147

⁵ *Cic.*, *Q. fr.*, III, 1, 3

**LEX OPERIS (CONTRACT)
AND THE EMPLOYMENT
OF SPECIALISED TEAMS**

The fact that this team was employed separately from the rest of the labour can explain a clause in the *lex operis*, the contract established between Verres and the builder regarding the restoration of the columns, which has clearly proven problematic to the editors:

Si pupillo opus redimitur, mihi praeda de manibus eripitur. Qui est igitur remedium? Quod? Ne liceat pupillo redimere. (...) Operae pretium est legem ipsam cognoscere (...). LEX OPERI FACIENDO. QVI DE L. MARCIO M. PERPENNA CENSORIBVS... SOCIVM NE ADMITTITO NEVE PARTEM DATO NEVE REDIMITO.

If the ward secures the contract, my prey is snatched from my grasp. How do we stop that, then? How? Why, let us prohibit the ward from bidding for it. (...) It is worth your while, gentlemen, to note the text of the contract (...) Text of the Contract. "THE ONE WHO FROM THE CENSORS LUCIUS MARCIUS AND MARCUS PERPERNA... MUST NOT TAKE A PARTNER NOR GIVE OR SUBLET A PART OF THE WORKS"⁹.

The global meaning of the text is clear: Junius, "the ward", was forbidden to bid for the contract because of this clause, whose purpose consists precisely in excluding him from the work ("let us prohibit the ward from bidding for it"). He is thus "the one who from the censors..." (L. Marcius and M. Perperna were censors in 86); in other words, the builder in charge of the previous restoration work on the temple which Verres rejected (a verb is definitively missing). However, the second part of the clause is far less clear. Some scholars, following the Loeb edition, translate "must not take him as partner nor allow him to share in the undertaking nor himself secure the contract". Nevertheless, it is grammatically difficult, as the three verbs are in the active form. Furthermore, this translation implies that the subject changes between the second and third verbs, which is most unlikely¹⁰. Thus, to understand this clause without altering the text or by-

⁹ Cic., 2 *Verr.* I, LV. 142-143.

¹⁰ Some editors thus add "eum" before "socium", and "er" twice after "neve". The Loeb edition does not accept these emendations, but explains its translation as follows: "It can only be conjectured that the complete clause added by Verres prohibited in general terms the exact action now taken by the guardians of Iunius" (Loeb edition, 1928: 276-277).

passing the grammar, it is necessary to consider that the works done on the columns required the employment of a specialised team because of the machine. Therefore, the builder in charge of the work on the columns had to either have such a team in his possession or hire one. The clause proposes three different contractual possibilities for this second option: to "take a partner", to "give a part of the works" or to "sublet a part of the works". As Junius was personally forbidden to do so, and did not seem to have had such specialised workers in his possession, he was simply unable to perform the required work on the columns.

In conclusion, thanks to Verres, who organised an extortion based on these works, and Cicero, who was never reluctant to describe Verres' actions in detail when they were not completely legal, here is a very rare piece of evidence of the use of a machine in a building context. This text is however more than a simple testimony to the Roman capability of using complex engineering solutions on building sites. In fact, if we are correct in our interpretation, the exclusion clause shows how important subletting or association could be in the building economy, as an ability to resort to it could even exclude someone from the work.

Cicero names only important people in his speech: members of the upper class of Roman society or contractors linked to them but, finally, it was the team of workers, perhaps of slaves, who were the key in this restoration work. Without them, and without their skills and the materials they brought with them, nothing could be performed, so it is a pity that we have no more information about them or their exact status, and that we cannot tell whether they belonged to an independent workshop or to the family of an important house.

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