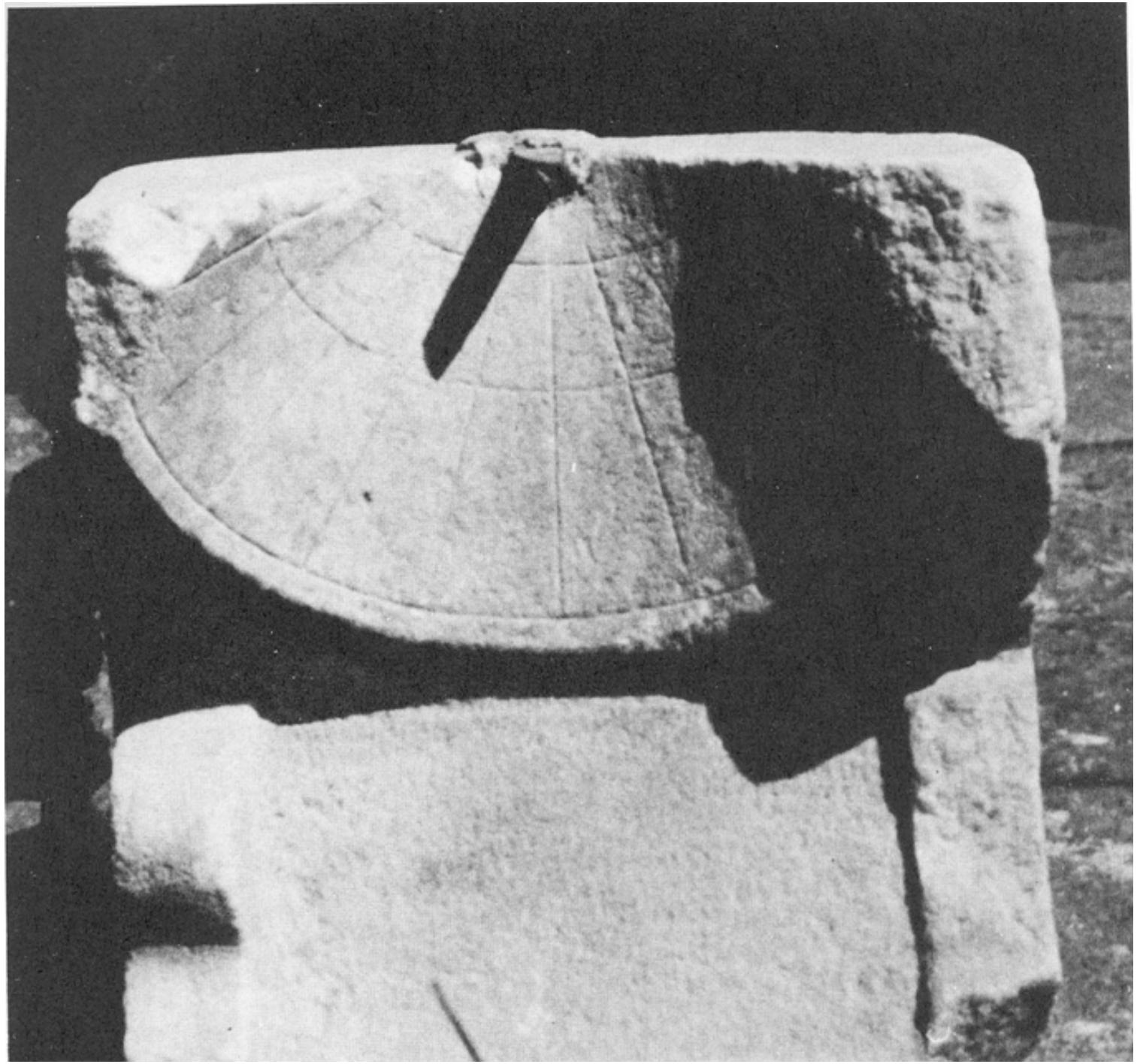

ὥρα βαδίζειν, ὡς ὁ κῆρυξ ἀρτίως
ἡμῶν προσιουσῶν δεύτερον κεκόκκυκεν.

Time to walk on, because our herald – precisely
As we girls were coming – repeated his keKOKKuken!

Aristophanes, *Ekklesiazousai*, 30, 31.

ἄνω ποταμῶν ἱερῶν χωροῦσι παγαί,
καὶ δίκα καὶ πάντα πάλιν στρέφεται·

The streams of mighty rivers run uphill!
What's right and proper: all's turned back to front.

Euripides, *Medea*, 410, 411.

οὐ γὰρ ὡς ὑμεῖς ὑπολαμβάνετε οὗτοι μεθύουσιν, ἔστιν γὰρ ὥρα τρίτη τῆς ἡμέρας·

For these are not drunken, as ye suppose, seeing it is *but* the third hour of the day.

The Acts of the Apostles, 2, 15

Tertius consensus fuit in horarum observatione, iam hic ratione accedens, quando et a quo in Graecia reperta, diximus secundo volumine. serius etiam hoc Romae contigit: …

The third agreement [between nations] was in reckoning by hours, which [as practised] here now agrees with the theory discovered in Greece, when and by whom we have stated in the second volume. It reached Rome rather later: …

Pliny the Elder, *Natural History*, VII, 212-215

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Time to walk on, because our herald – precisely
As we girls were coming – repeated his keKOKKuken!

Aristophanes, *Ekklesiazousai*, 30, 31.

Καὶ ἤδη τε ἦν ἀμφὶ ἀγορὰν πλήθουσαν …

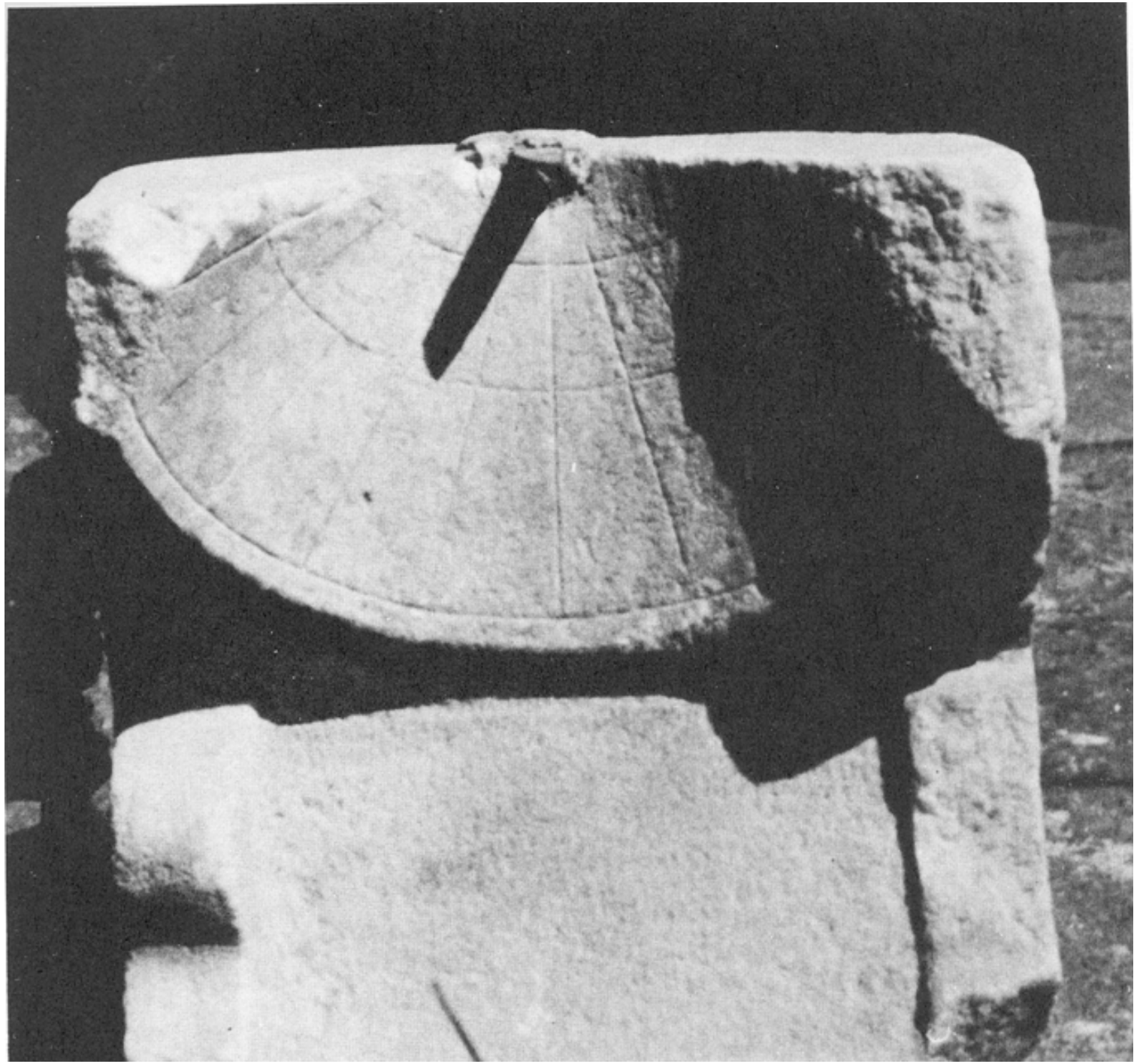
And by then it was about [the time when a] market [would be] crowded …

Xenophon, *Anabasis* I, VIII, 1

… δοκέει δέ μοι ἐνθεῦτεν γεωμετρίη εὑρεθεῖσαὲς τὴν Ἑλλάδα ἐπανελθεῖν. **πόλον μὲν γὰρ καὶ γνώμονα καὶ τὰ δυώδεκα μέρεα τῆς ἡμέρης παρὰ Βαβυλωνίων ἔμαθον οἱ Ἕλληνες.**

… It seems to me that once geometry had been discovered it came thence (from Egypt) across into Greece. **But surely the Greeks learned about the** [diurnal] **rotation, the gnomon, and the twelve divisions of the day, from the Babylonians.**

Herodotus, *The Histories* II.109.3



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Herodotus, *The Histories* II.109.3

... σοὶ δὲ μελήσει,
ὅταν ᾖ δεκάπουν τὸ στοιχεῖον, λιπαρῷ χωρεῖν ἐπὶ δεῖπνον.

... but your daily task shall be,
When the measurement's ten-foot, to be spruced up and go for tea!

Aristophanes, *Ekklesiazousai*, 651, 652.

Parasitus ibi esuriens haec dicit:
ut illum di perdant, primus qui horas repperit,
quique adeo primus statuit hic solarium!
qui mihi conminuit misero articulatim diem.
Nam me puero venter erat solarium
multo omnium istorum optimum et verissimum:
ubi is te monebat, esses, nisi cum nihil erat.
Nunc etiam quod est, non estur, nisi soli libet;
itaque adeo iam oppletum oppidum est solariis,
maior pars populi aridi reptant fame.

There's a hungry dinner-guest who has these words to say:
Gods rot that man, who first invented hours of the day,
And him alike who first set up the sundial in this place!
They cut the day up piece-by-piece for wretched me to face.
For when I was a little boy, my belly was to me
My time-keeper, the very best and truest that could be;
When it told you to, you ate, unless the shelf was bare.
Now, 'till the Sun allows, food isn't eaten though it's there.
And now, because we're fully stuffed with dials in this town,
Most folk creep round withered up, since hunger holds them down.

attr. Plautus; Aulus Gellius: *Noctes Atticae* 3.3.5

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attr. Plautus; Aulus Gellius: *Noctes Attic*

Hemicyclium excavatum ex quadrato ad enclimaque succisum Berosus Chaldaeus dicitur invenisse; scaphen sive hemisphaerium Aristarchus Samius, idem etiam discum in planitia; arachnen Eudoxus astrologus, nonnulli dicunt Apollonium; plinthium sive lacunar, quod etiam in circo Flaminio est positum, Scopinas Syracusius; pros ta historumena Parmenion, pros pan clima Theodosius et Andrias, Patrocles pelecinum, Dionysodorus conum, Apollonius pharetram, aliaque genera et qui supra scripti sunt et alii plures inventa reliquerunt, uti conarachnen, conicum plinthium, antiboreum. Item ex his generibus viatoria pensilia uti fierent, plures scripta reliquerunt. Ex quorum libris, si qui velit, subiectiones invenire poterit, dummodo sciat analemmatos descriptiones.

Berosos the Chaldean is said to have invented the "*semicircle* hollowed out of a rectangle and cut to suit the latitude"; Aristarchos of Samos, the "*bowl*" or "*hemisphere*" and also the "*disc* on a level surface"; Eudoxos the astronomer or, some say, Apollonios, the "*spider's-web*"; Skopinas of Syracuse, the "*little brick*" or "hollow [square]", which still stands in the Circus Flaminius; Parmenion, the "[dial] *for prognostications*"; Theodosius and Andrias: the "[dial] *for every latitude*"; Patrocles, the "*pelican*"; Dionysodoros, the "*cone*"; Apollonios, the "*quiver*". Both the men named above and many others have bequeathed us further types that have been invented, such as the "*conical-spider's-web*", "*conical block*", [and] "*North-facing* [dial]". Moreover, besides these types, many [of them] have left written [descriptions] for the making of portable hanging [dials]. From which books, anyone who wishes it may take instructions, provided that he understands the drawing of the *analemma*.

Vitruvius, *de Architectura*, book IX, viii.

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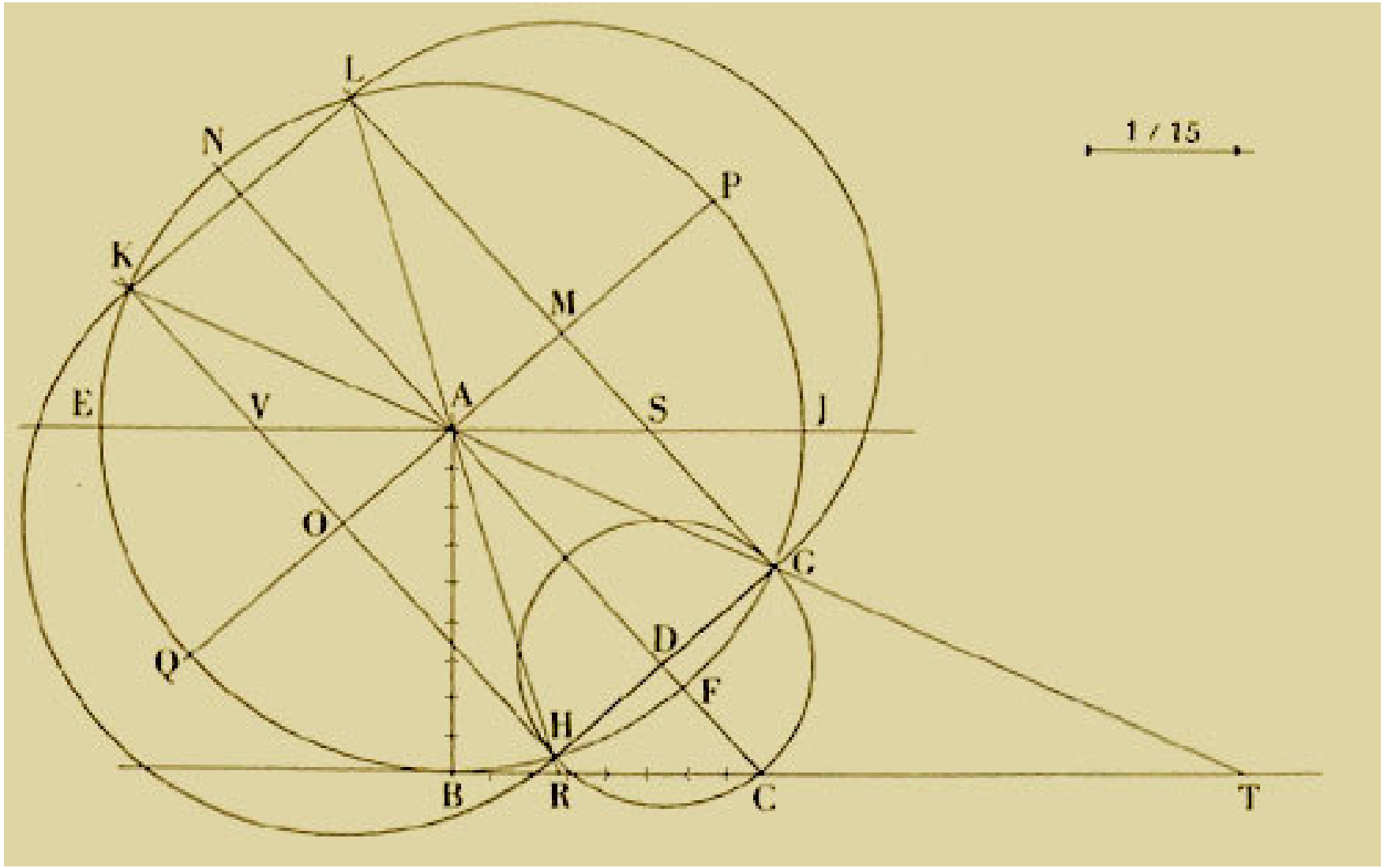
Vitruvius, *de Architectura*, book IX, viii.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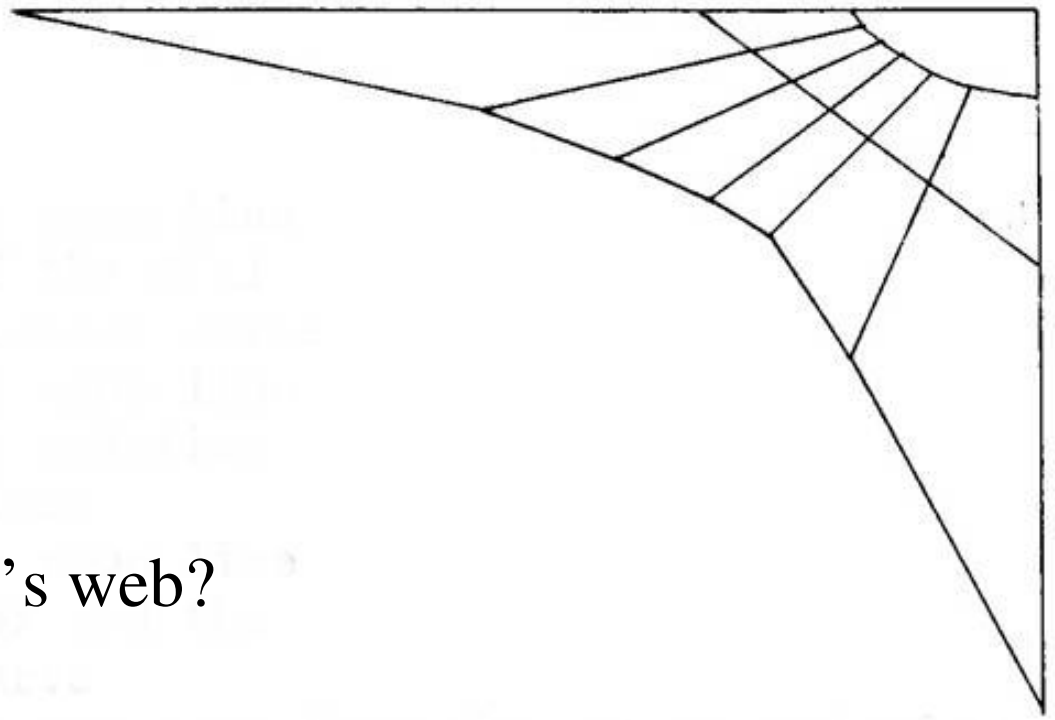
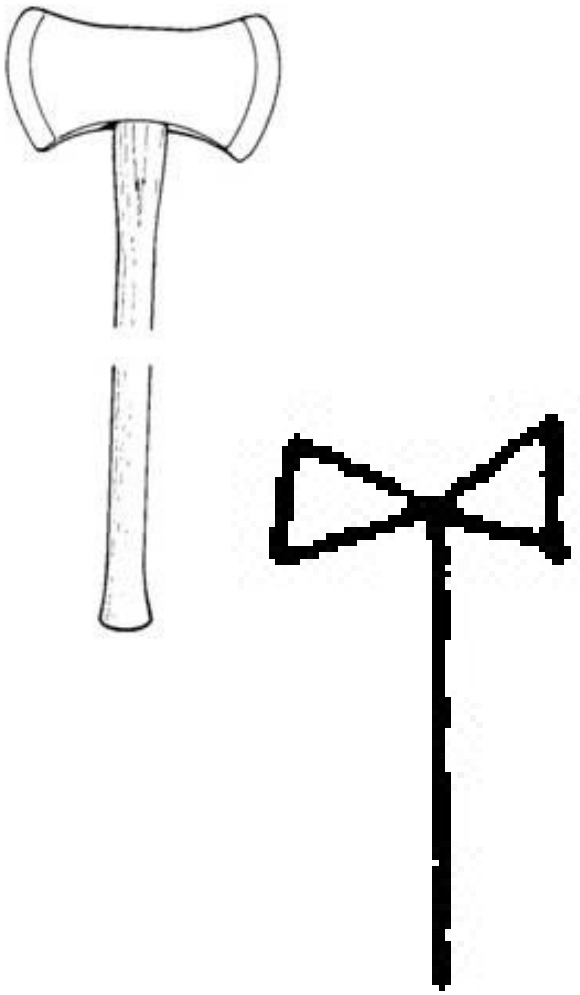
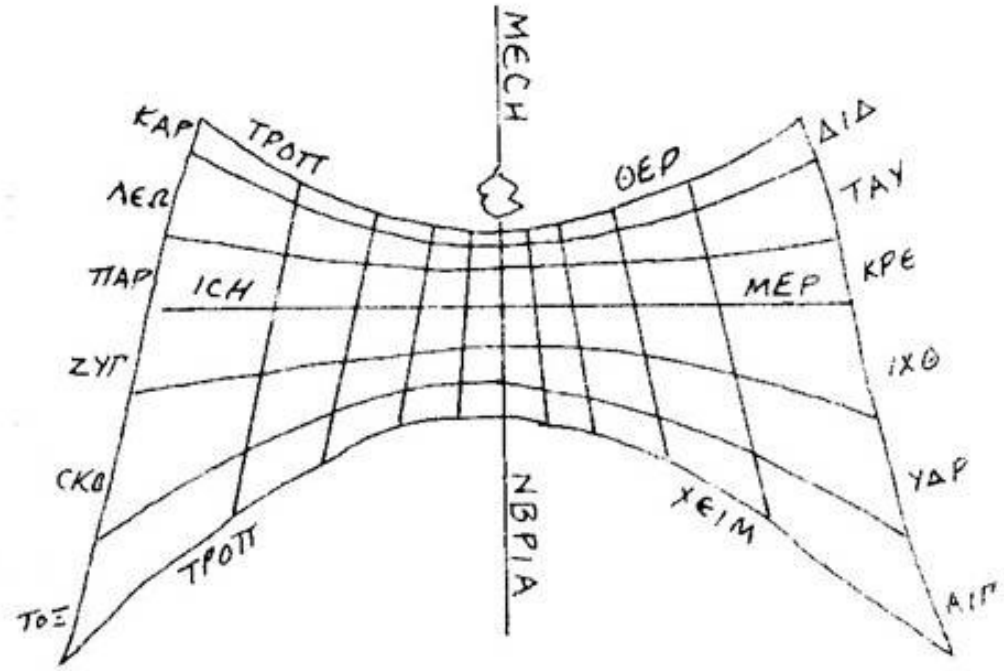
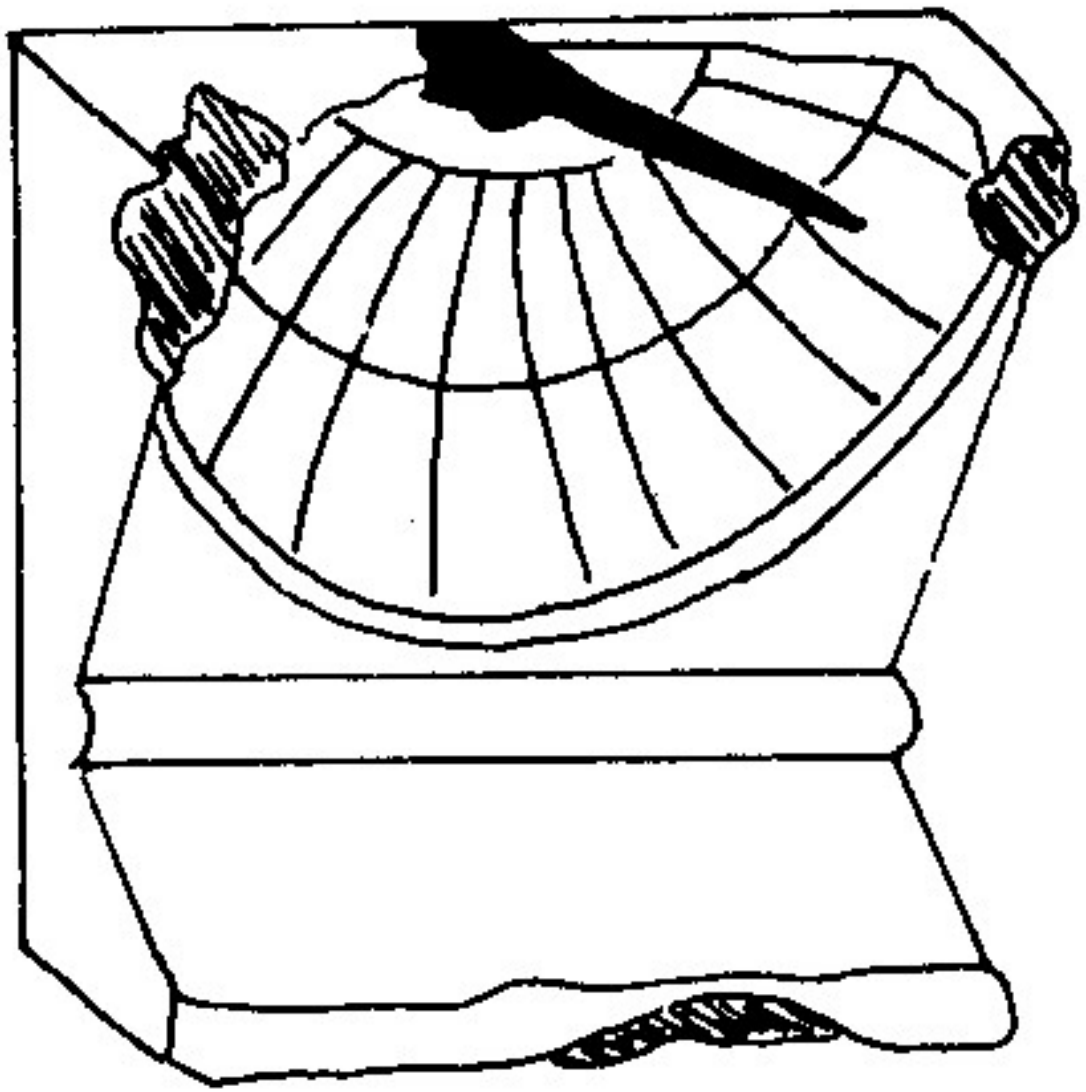


spider’s web?





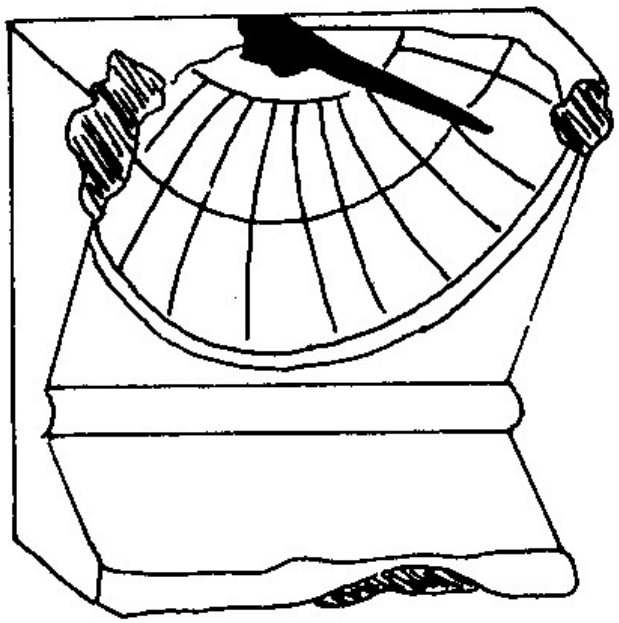
double-bitted axe?



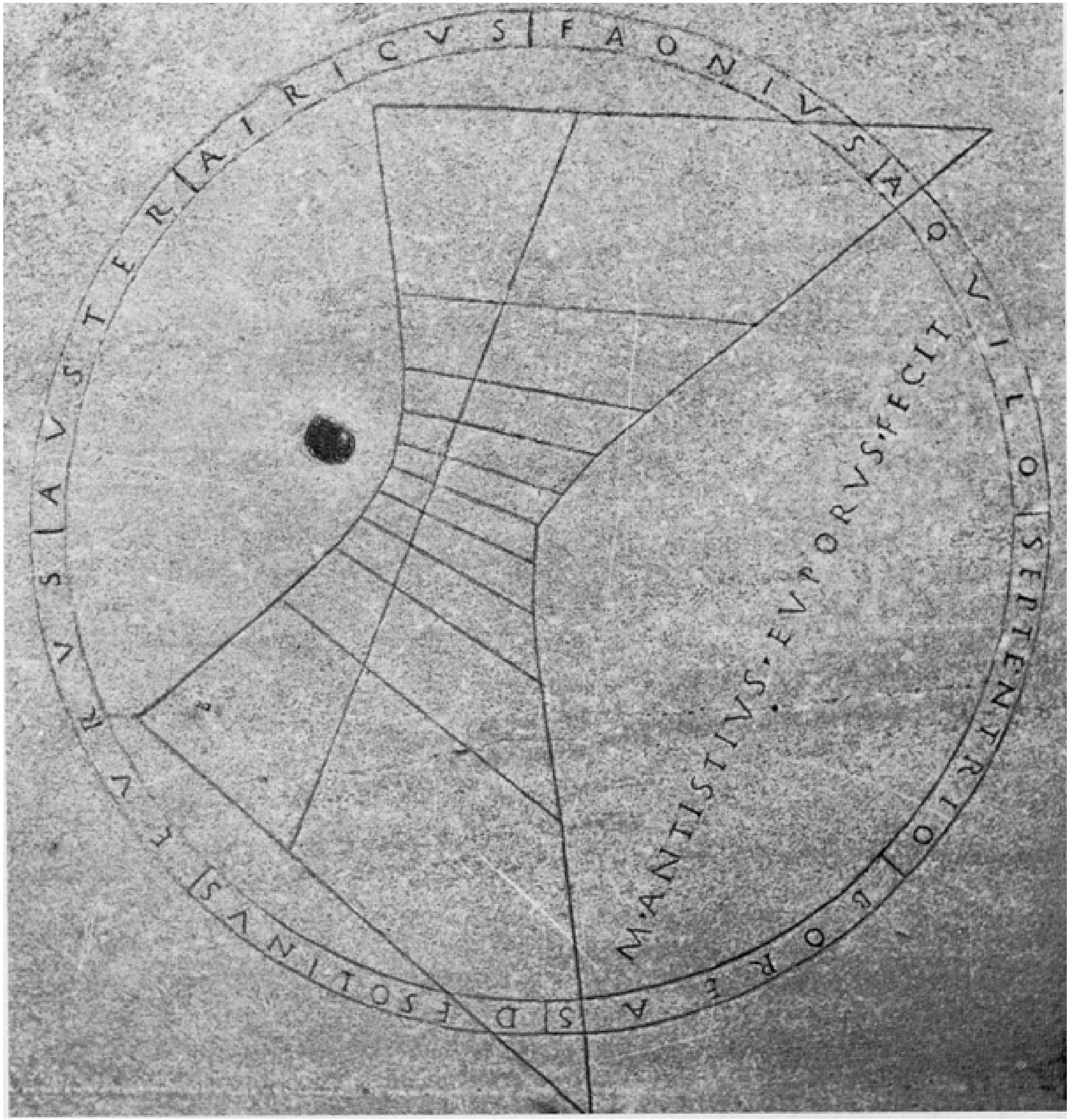
᾽Αντίον ἠελίου στήσας ῥῖνα καὶ στόμα χάσκων,
δείξεις τὰς ὥρας πᾶσι παρερχομένοις.

Having placed your nose facing the Sun, and opening wide your mouth,
You shall show the hours to all those going past.

Anthologia Graeca 11.418



Point your nose to the South and gape at the sky,
And you'll show the time to all those who pass by.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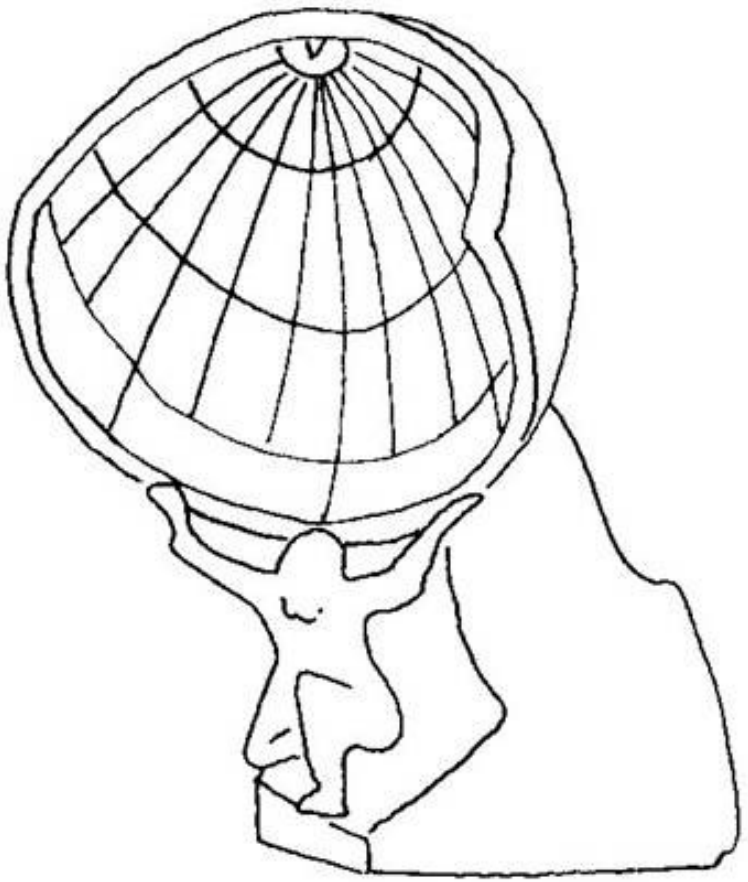


ΘΗΒΑΙΣ ΚΘ
ΑΦΡΙΚΗ ΛΑ
ΑΛΕΞΑΝΔΡΙΑ ΛΑ
ΑΝΤΙΟΧΙΑ ΛΣ
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ΚΩΝΣΤΑΝΤΙΝΟΥΠΟΛΙΣ ΚΑ

Trabes … obeliscos vocantes … Ei qui est in campo divus Augustus addidit mirabilem usum ad deprendendas solis umbras dierumque ac noctium ita magnitudines, strato lapide ad longitudinem obelesci, cui par fieret umbra brumae confectae die sexta hora paulatimque per regulas, quae sunt ex aere inclusae, singulis diebus decresceret ac rursus augesceret, digna cognitu res, ingenio Facundi Novi mathematici. is apici auratam pilam addidit, cuius vertice umbra colligeretur in se ipsam, alias enormiter iaculante apice, ratione, ut ferunt, a capite hominis intellecta. haec observatio XXX iam fere annis non congruit, sive solis ipsius dissono cursu et caeli aliqua ratione mutato sive universa tellure a centro suo aliquid emota (ut deprehendi et aliis in locis accipio) sive urbis tremoribus ibi tantum gnomone intorto sive inundationibus Tiberis sedimento molis facto, quamquam ad altitudinem inpositi oneris in terram quoque dicuntur acta fundamenta.

Elongated pieces [of granite] … called obelisks … To that which is in the Campus [Martius], the divine Augustus gave a remarkable function: the observation of the shadows of the sun day-by-day, as follows. Using scales, which are of bronze, let in to a stone pavement proportioned to the height of the obelisk – [of a breadth] equal to [the length] that the shadow would gradually attain at the sixth hour of the day at full midwinter – [one might observe] the amounts [by which] it had decreased, or otherwise increased, in individual days. This is a noteworthy thing, devised by the mathematician Facundus Novus. He fitted a gilded ball to the tip, by the top of which the shadow might be sharpened, reasoning – so they say – from the appearance [of the shadow cast] by a man's head; otherwise [the shadow] would have been cast irregularly by the tip [of the obelisk itself]. For about thirty years now, this indication has been inconsistent: whether by some untoward movement of the Sun itself and by some changed law of the heavens; or by a displacement of the entire Earth somewhat from its centre (as, I hear, is noticed in other places also); or by displacement of the gnomon by the shaking of the city there so severely; or by the subsidence of the great mass caused by inundations by the Tiber (although the foundation works are said to be in proportion to the height of the burden on them).