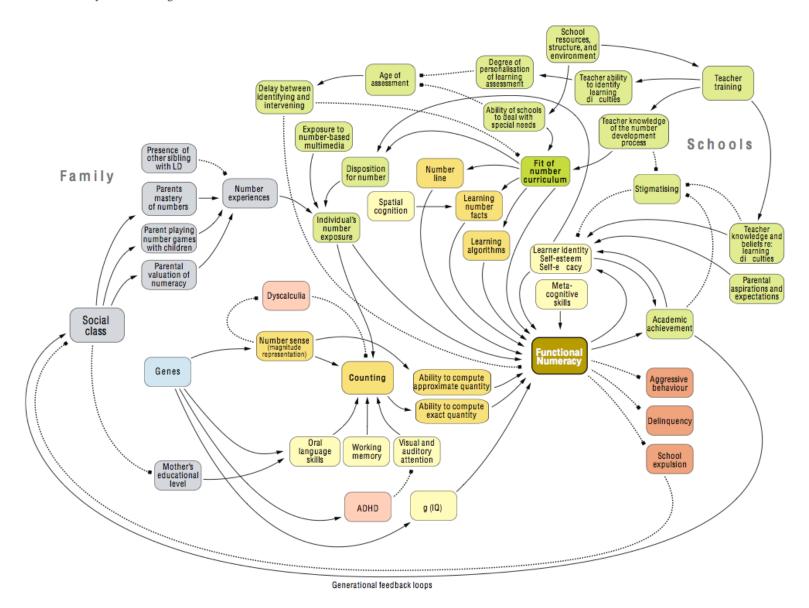
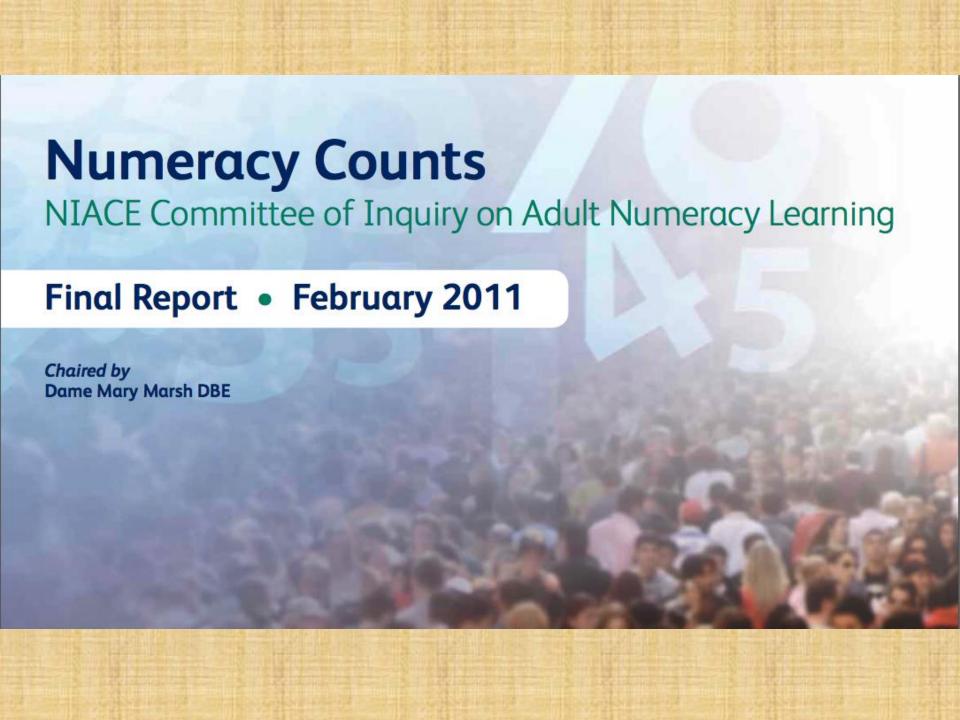
Exploring ancient Greek and Roman numeracy

Serafina Cuomo Birkbeck College London







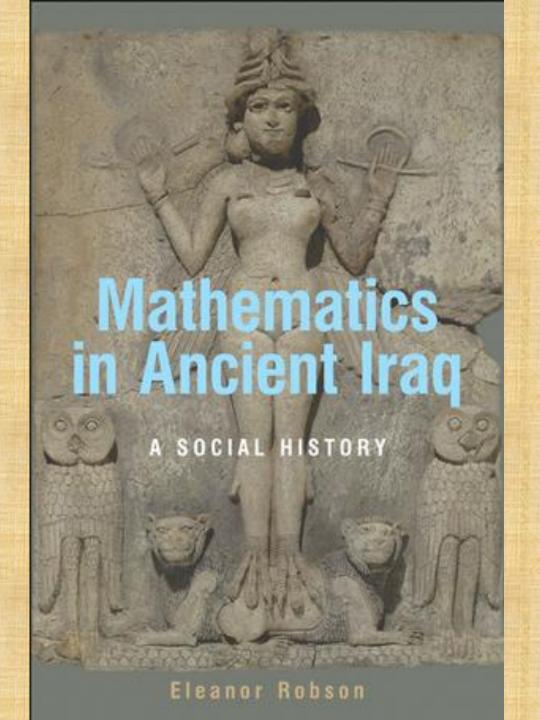
What is numeracy?

Greek Anthology XIV 127

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There is a general method to find the area of any triangle whatsoever, given the three sides and without the height; for instance let the sides of the triangle be 7, 8, and 9 units. Add 7, 8 and 9; it makes 24. Of these take the half; it makes 12. Subtract the 7 units; the remainder is 5. Again subtract 8 from 12; the remainder is 4. And further <subtract> 9; the remainder is 3. Multiply 12 by 5; they make 60. These by 4; they make 240; these by 3; they make 720; take the root of these it will be the area of the triangle. geometric proof of that is And the synthesis is like this: ...

Lysias, Against Diogeiton 19-26

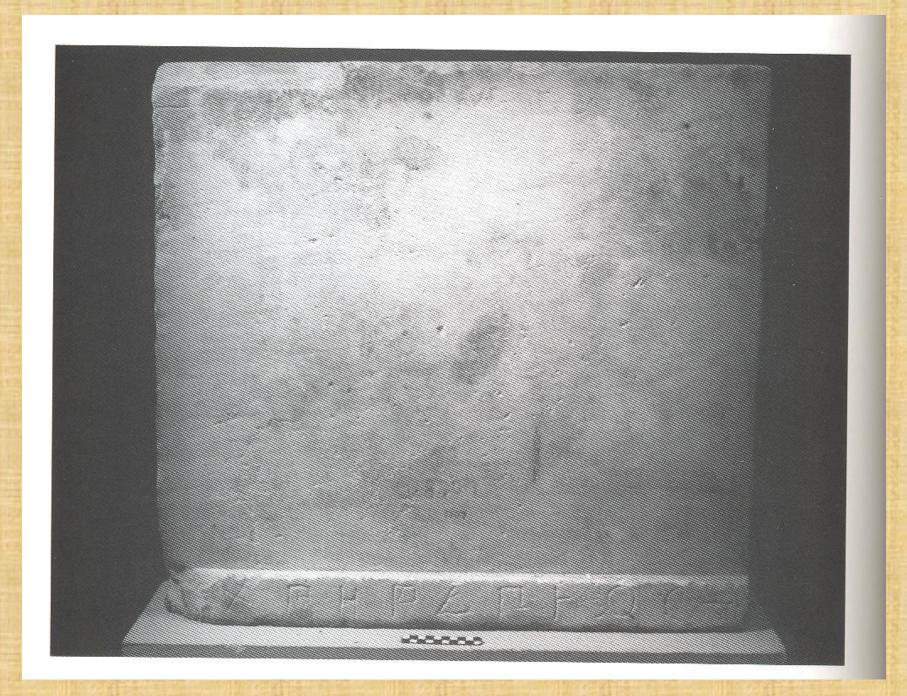
Gentlemen of the jury, I ask that due attention be given to this calculation ... Diogeiton has had the face to ... make out a sum of 7 talents of silver and 7,000 drachmae as receipts and expenses on account of two boys and their sister during 8 years. ... he showed 16 drachmae as the price of a lamb ... he added a multitude of things which he counted in to make up his total, as though he had been named in the will as guardian of the children merely in order that he might show them figures instead of the money.

Seneca, Letters to Lucilius 88.10-3

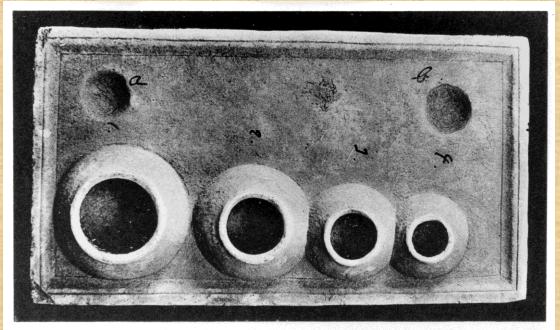
A geometer teaches me how to measure my estate; but I should rather be taught to measure how much is enough for a man to own. He teaches me to do sums and put my fingers to the service of greed, but I should prefer him to teach me that those calculations have no importance ... You can measure curved things, you reduce any given shape to a square, you enunciate the distance of the stars, there is nothing which falls outside your measure: if you are so good at your art, measure a man's soul, say how big or how small it is. You know what a straight line is; what good is that to you if you do not know what a straight life is?

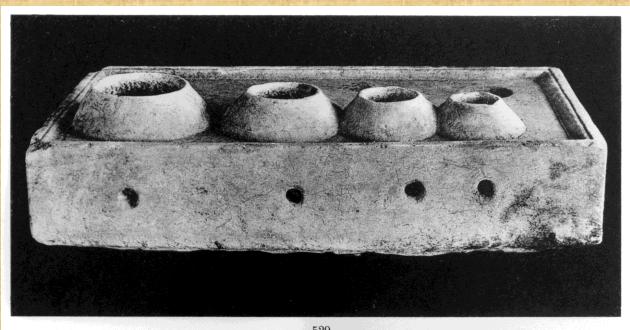
Archaeology



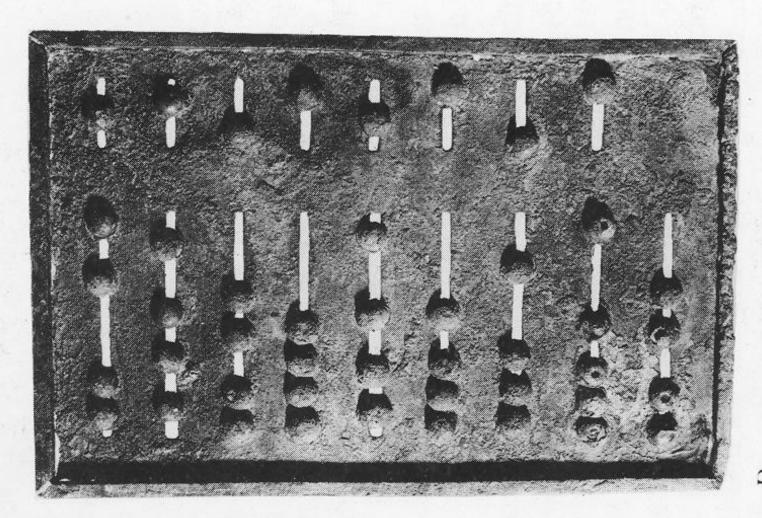














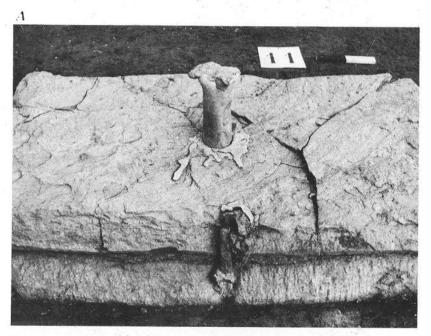
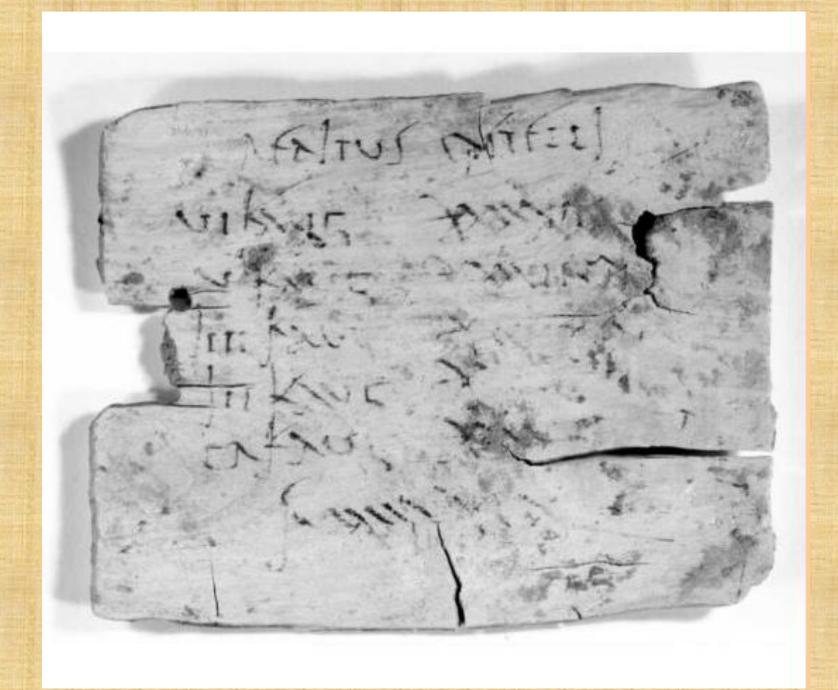
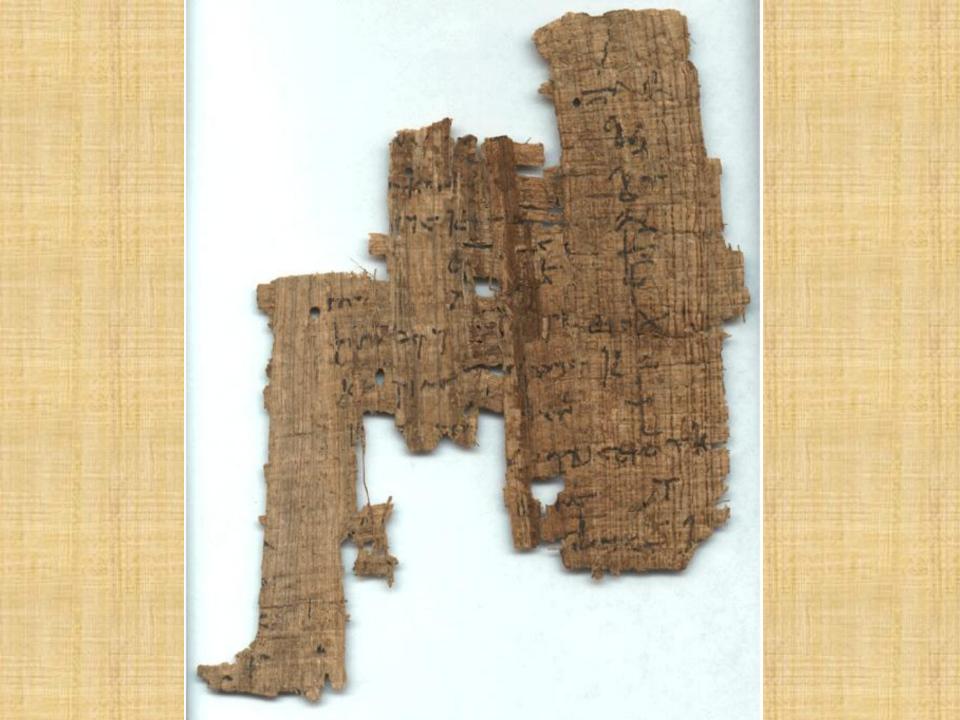


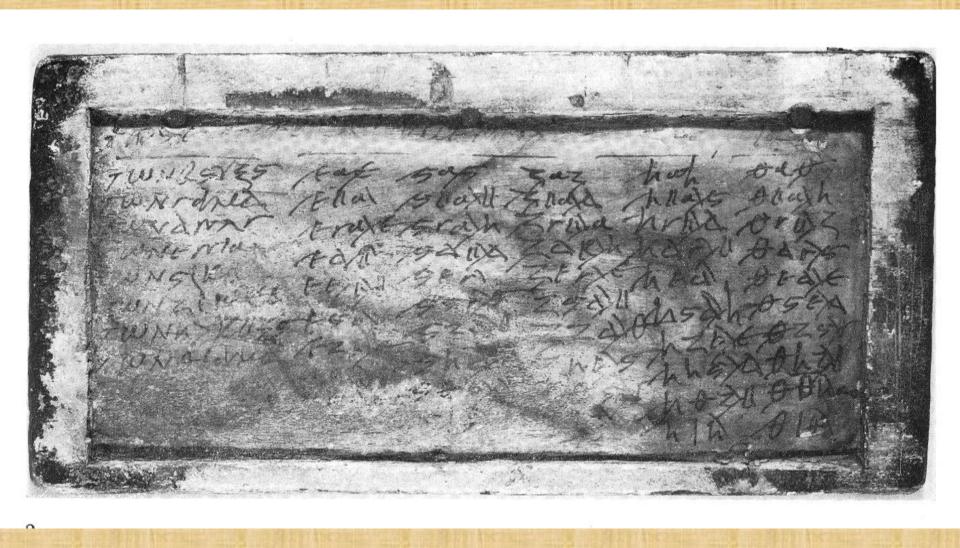


Fig. 24 - Necropoli St-Martin-de-Corléans. Tomba 11 A - Lastra di copertura con tubo per libazioni funerarie B - Interno della tomba 11

Papyri (and ostraka and tablets)











Epigraphy

MYPINALOI MENAAION HAPAKYMENAPHIII MALEDELO MARRIMAPYNEIES DIFF BEPAAIOI DEMISINATO OPAMBALCA APHIII KAPPAGO THHH MENDA APKESEIA HABA TYNALES NEOPEL APHIL KAMIPES PAPANTA TELYELOI 可用 AKANOLA HHH MALYANIO! APLIM ETAA PITA LINDIOI FILE TOPONALOI DEALES DEAD HHHH SKIONAIOI E-H EALINAO AAH IKIO MAHHIXALFEATAL HHH AINEATAI VALKEATAI ADAPHHOLOGYXEI EPIDOPAE HHH DETAPES KEPPONESIOLDHILL SERMA



Questions about numeracy

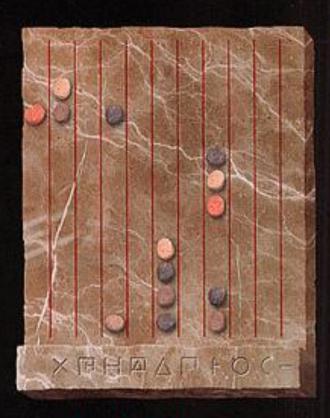
How did they do it?



Maasai counting with hand signals

COMPTER AVEC DES CAILLOUX

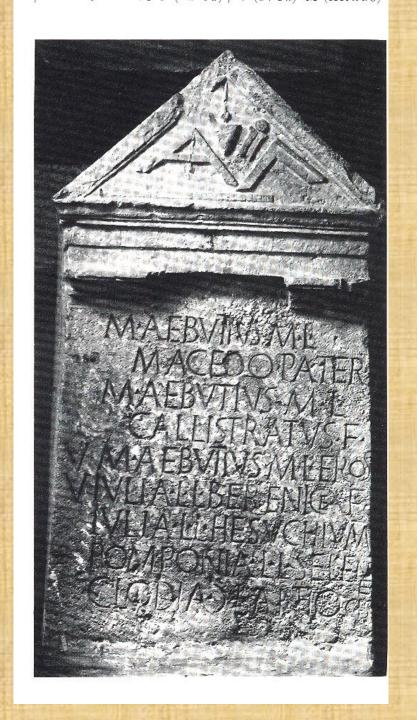
ALAIN SCHÄRLIG



Le calcul élémentaire sur l'abaque chez les anciens Grecs

Questions about numeracy

Who were they?





Questions about numeracy

What did they do with it?

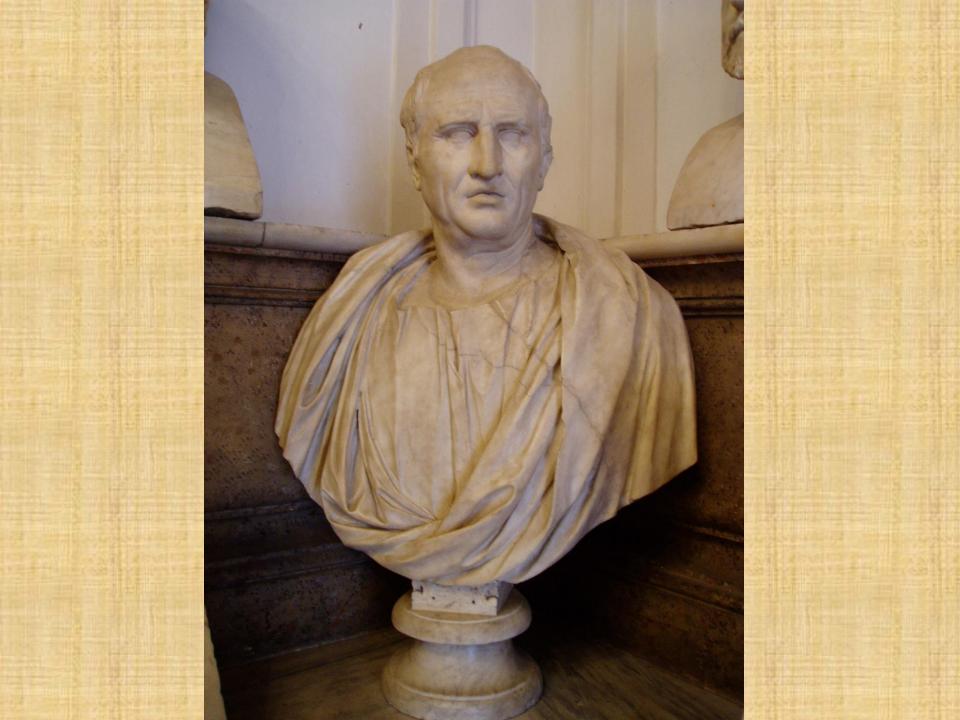
"Competent, confident and comfortable with one's judgements on

"Competent, confident and comfortable with one's judgements on whether to use mathematics in a particular situation, and if so, what mathematics to use, how to do it, what degree of accuracy is appropriate, what the answer means in relation to the context, whether/how to communicate the answer appropriately, and what (if any) action to take in the light of the analysis."



Case one: Cicero and the scribae





Cicero, Pro Roscio Comoedo 7

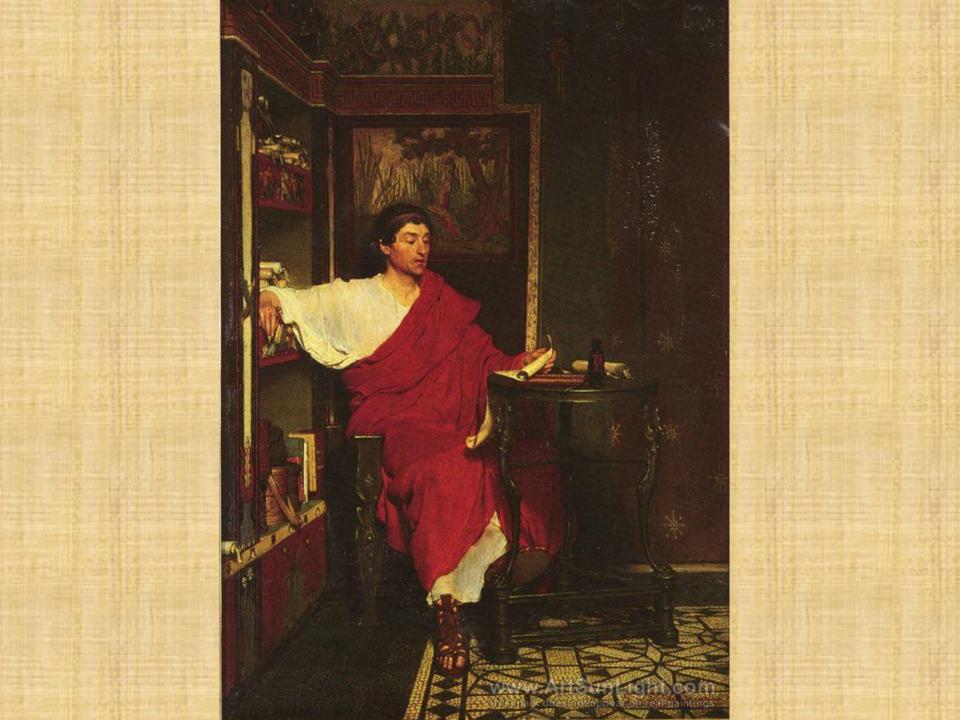
Why is it that we write down memoranda carelessly, but we make up account-books carefully? For what reason? Because the one is to last a month, the other for ever; these are immediately expunged, while those are religiously preserved; these embrace the recollection of a short time, those pledge the good faith and honesty of a man for ever.

Cicero, Against Verres II 1.57

The statues and works of art that P. Servilius, according to the law of war ... removed from the enemy city, ... he brought back to the Roman people, displayed in triumph, took care to write down in the public accounts of the treasury. Acknowledge from public documents the diligence of this eminent man. Read. RENDERED ACCOUNTS OF P. SERVILIUS. You see that not only the number of statues, but also their size, shape and posture is specified ... I declare that Servilius had noted down and recorded the loot of the Roman people much more diligently than you have your own stolen goods.

Cicero, Ad familiares 128

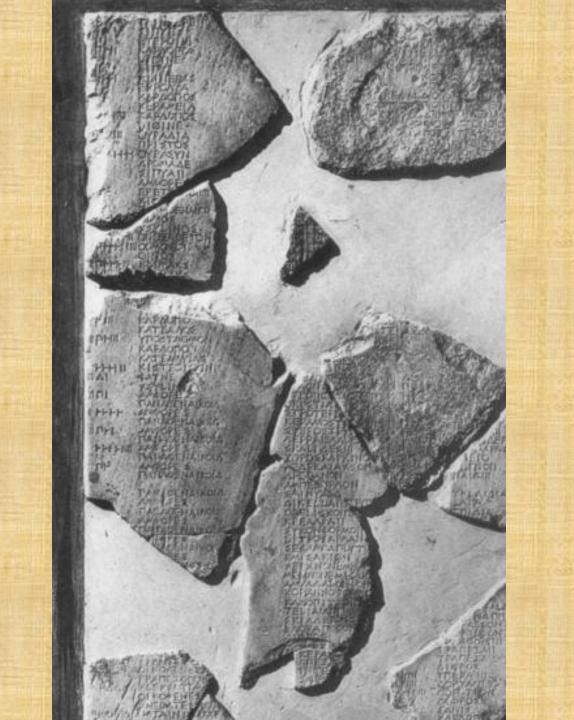
It would be easier for me to reply in detail if my clerk was here. As to him, I am fully assured that so far as the rendering of accounts goes ... he has not intentionally done anything contrary to your financial interest or reputation. ... I put y clerk ... entirely in your hands. ... The accounts were made up in my absence with your cooperation. All I did was read them ... At any rate what the law required was done ... So on this point my first answer is that, although for good reasons I was in a hurry to present my accounts, I should have waited for you.





Case two: Athenian account inscriptions



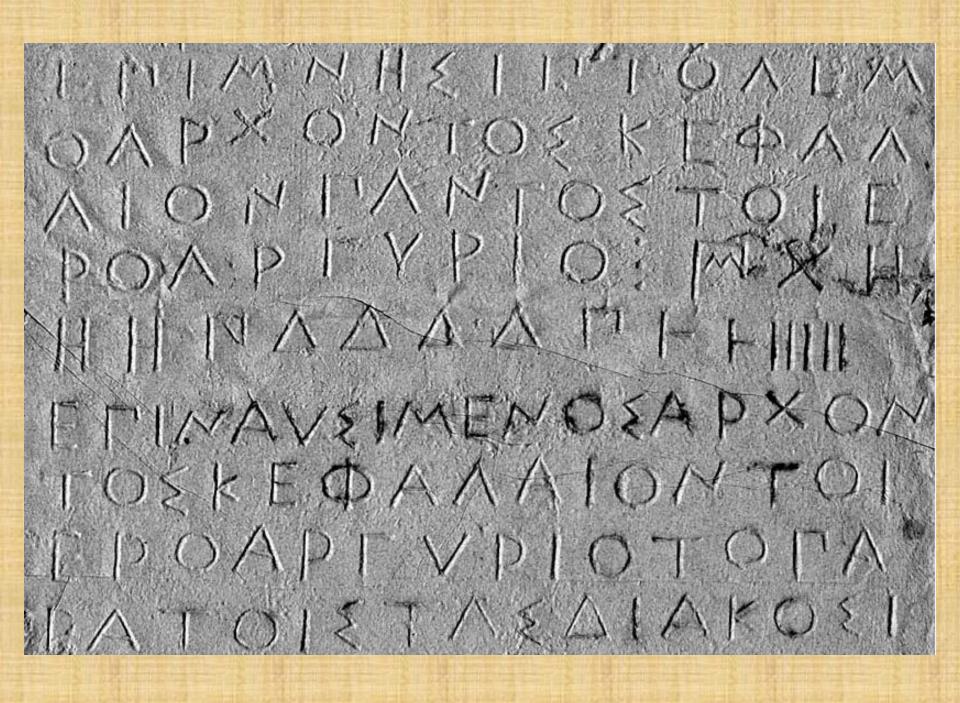






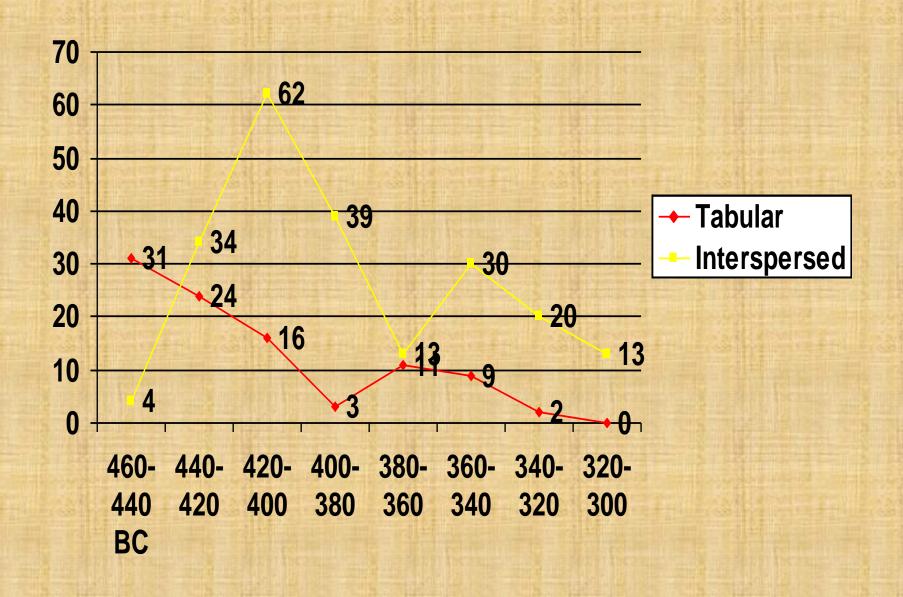
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	α[ι] χουσί[ο]
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	σ[ταθ]μόν
H AAA	
[.]ΣΣ	σ.τ.[ατε^ρες]
सिसिस	Αί[γιναῖοι]
ДАДА	στα[τε^وες]
ННННР	Χία[ι δραχμαί]
ΔΔΔΓΙΙΙΙ	άργυρ [αΐ]
ΑΑΙ ΈΣ	Κορίνθιο[ι]
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lacuna



[θεοί]·

[τάδε παρέδοσαν hαι τέτταρες άρχαί, hαὶ ἐδίδοσαν τὸν λόγον ἐκ Παναθεναίον] [ἐς Παναθέναια, τοῖς ταμί]αις τεˆς θεοˆ Πυθ[οδόροι hαλαιεῖ καὶ χουνάρχοσι, hοῖ]-[ς Φορμίον Αριστίονος Κ]υδαθεναιεύς έγραμμάτευ εν· [hoι δὲ ταμίαι, hoῖς Φορμί]-[ον Άριστίονος Κυδαθεν]αιεύς έγραμμάτευε, παρέδοσαν τ[οῖς ταμίαις Άναχσ% 80]-[ικράτει Λαμπτρεί καὶ χ]συνάρχοσι, hοίς Εύχσενος Εὐφάνος [Προσπάλτιος ἐγρ]-[αμμάτευε, έν το ι πρόνε]ιοι· φιάλε χρυσε, έχς ές ἀπορ αίνοντα[ι, ἄσταθμος· φιάλα]-[ι ἀργυραῖ ΗΔΔΙ, σταθμὸ]ν τούτον ΤΤΗΗΗΗΔΔΔΗΗ κέρατα ἀργυρᾶ [ΙΙΙ, σταθμὸν τούτο]-[ν ΕΔΔΓΗΗ ποτέρια ἀργ]υρά Γ, σταθμὸν τούτον ΗΕΔΓΗ λύχνος ἀργυ[ρο´ς, σταθμὸν τ]-[ούτο ΔΔΔΓΗΗ- φιάλαι ἀργ]υραί ΓΗ-, σταθμὸν τούτον ΓΗΗ- στέφανος χρ[υσο´ς, σταθμὸν] [τούτο ΔΔΔΗΗΗΙΙΙ· φιάλα ά] ργυρά ΙΙ, σταθμὸν τούτοιν ΗΗ· φιάλαι ἀργυρ[αῖ ΙΙΙΙ, σταθμὸ]-[ν τούτον ΗΗΗΔΔΓΗΗΗ]· ποτέριον ἀργυρ% ο ν, σταθμὸς τούτο ΔΔΔΔ· φιά[λαι ἀργυρα]-[î ΓΙΙ, σταθμὸν τούτον []ΗΗΗΗΑΔ· φιάλαι ἀργυραί ΙΙΙΙ, σταθμὸν τούτον [ΗΗΗΗΑΔ· ποτέ]-[οιον ἀργυρο ν, σταθμόν] τούτο ΔΔΔΔ φιάλαι ἀργυραί ΓΙΙ, σταθμόν το [ύτον ΕΗΔΔΔΔ] [ΗΗΗΙ φιάλαι ἀργυραί ΙΙΙ], σταθμὸν τούτον ΗΗΡΗ ποτέριον ἀργυρο ν, [σταθμὸν τούτ]-[ο ΕΔΓΗ· λύχνος ἀργυρος], σταθμὸν τούτο ΔΔΗΗ· φιάλαι ἀργυραῖ Ι Ι Ι , σταθ[μὸν τούτον] [ΗΗΡΔΔΔΔΗ-Η-Η- φιάλαι ά]ογυραῖ Γ, σταθμὸν τούτον ΗΗΗΗΔΗ-Η- ά[ρ]γυρ[ῖς Ι, σταθμὸν] [ταύτες ΗΔΗ- ποτέριο]ν ἀργυρο ν, σταθμόν τούτο ΔΔΔΔΓΗ- ἀργυρ[ὶς Ι, σταθμόν ταύ]-[τες ΕΔ· ποτέριον άργυ]ρο ν, σταθμόν τούτο ΔΔΔΓΗΗΗ. ἐπέτεια [ἐπεγένετο ν άργυρ]-[ὶς Ι, σταθμὸν ταύτες] ΗΡΗ-Η ποτέριον ἀργυρο ν, σταθμὸν τούτ[ο Δ]Δ[Δ ννν ννν ννν ν]









Thank you!

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