

Knucklebones or Weights?

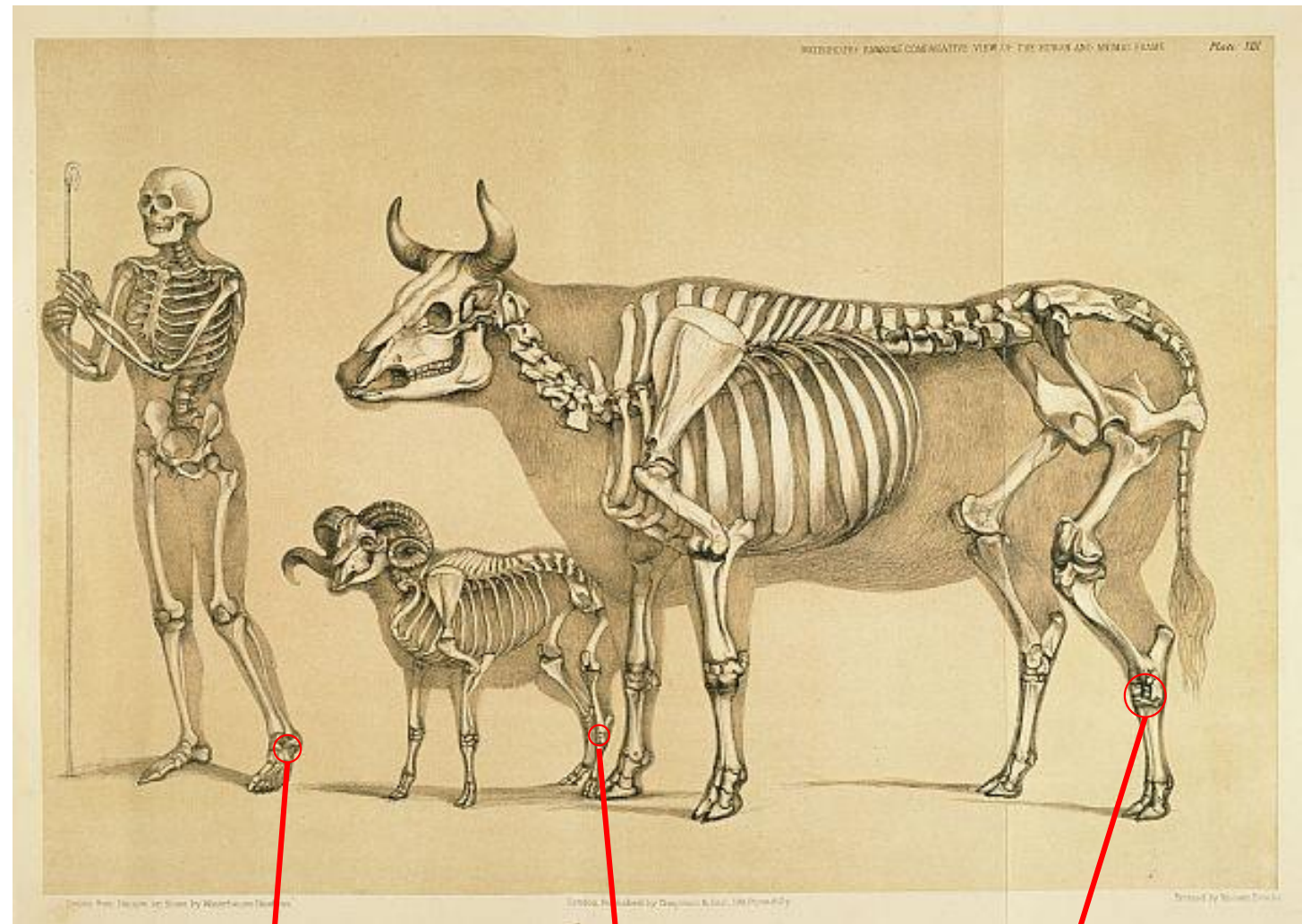
Metal Astragali in the Classical World

Charles Doyen

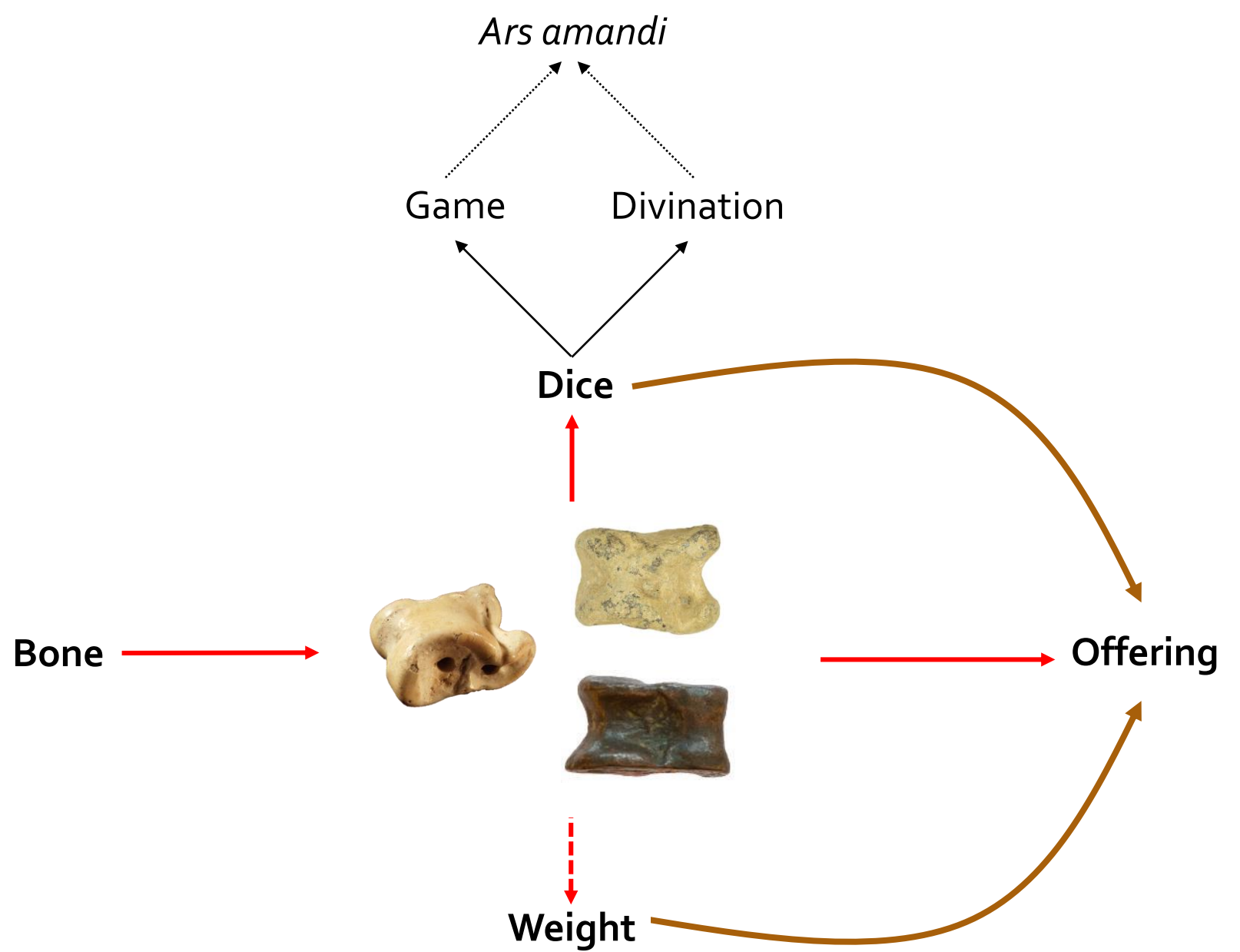
Play and Games in Antiquity. Definition, Transmission, Reception

La Tour-de-Peilz, September 18, 2018

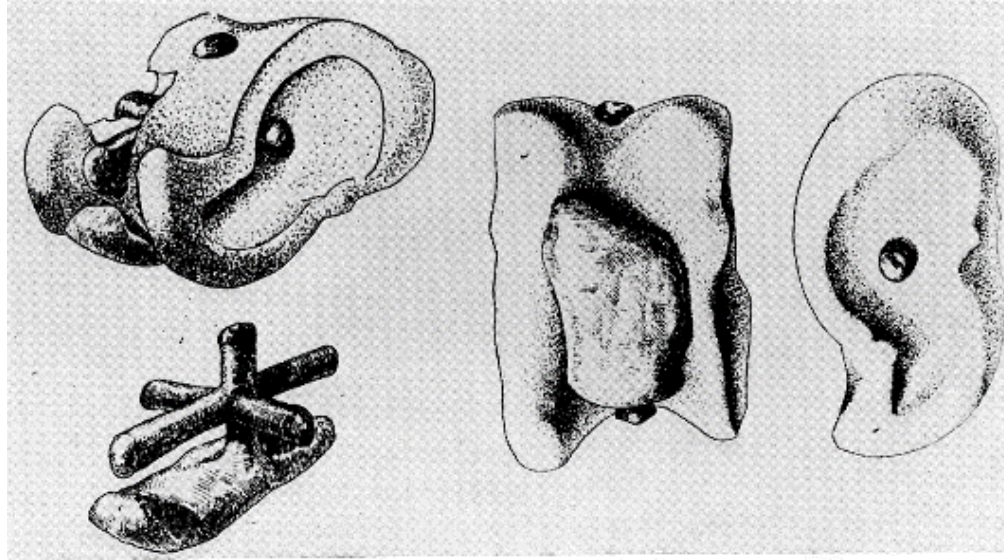
Anatomical Realities



A Polysemous Artefact



Bone and Metal Astragali



Ras Shamra



Athenian Agora



Warsaw, 148512
3.7×2.4×2.1 cm. 56.1 g



Pera Museum. PMA 3565
6.4×4.7×0.8 cm. 121.1 g

Bone and Metal Astragali



Locri: Leaded astragali, Contrada Lucifero necropolis, Tomb 1013

Metal Astragali:

Anepigraphic Items



Athens (NMA), 1911-12, ΛΘ' 330
1.8×1.1×0.9 cm. 12.1 g



Warsaw, 198382
2.9×1.8×1.5 cm. 41.4 g



Athens (NMA), 1911-12, ΛΘ' 446
2.8×1.8×1.3 cm. 51.6 g



Geneva, CdN 32529 bis
3.4×1.9×2.2 cm. 65.5 g



Bursa, 7519
3.6×2.1×1.9 cm. 94.0 g

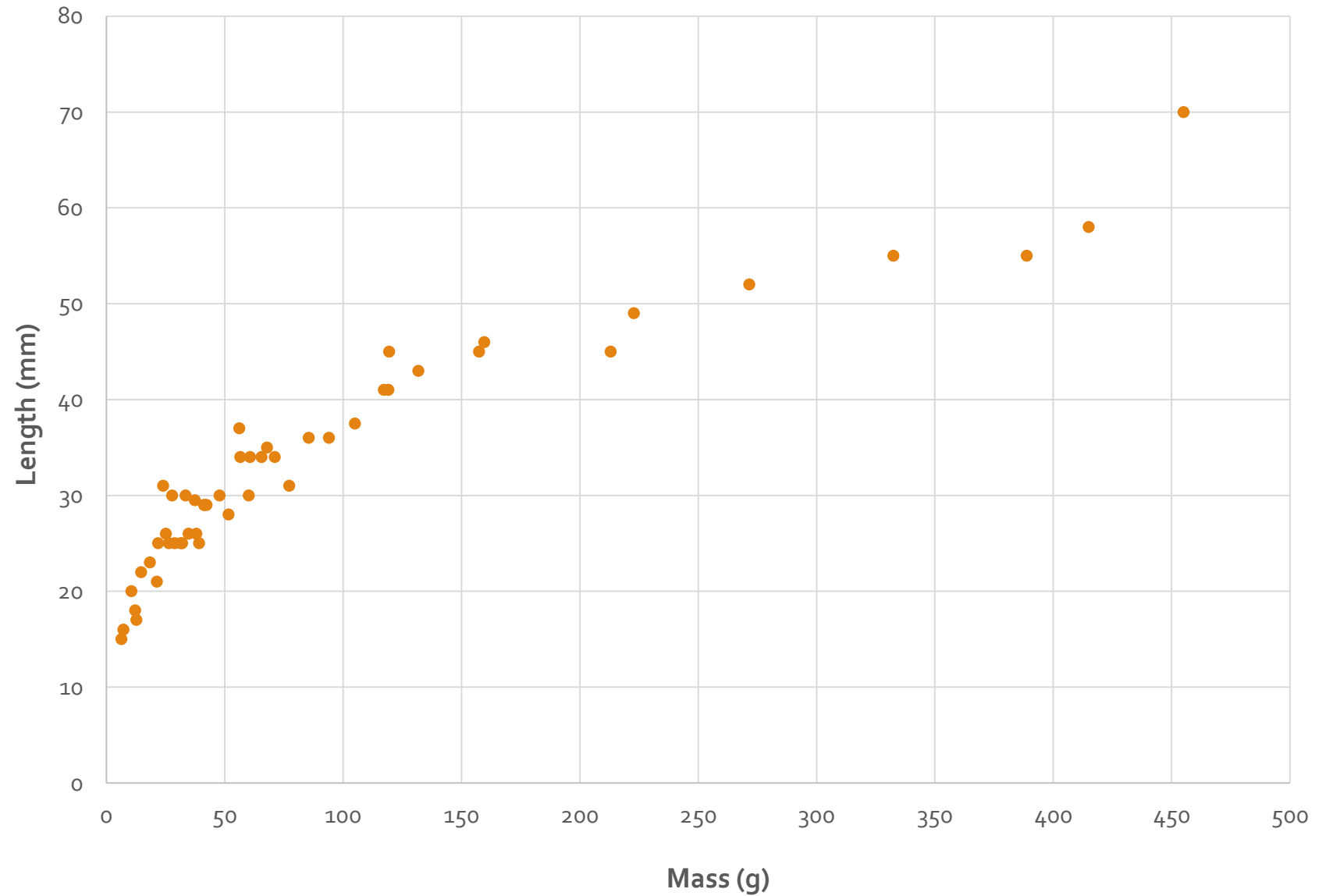


Auction Peus 2017b, 1269b
5.2×4.5 cm. 271.5 g

Metal
Astragali:

Anepigraphic
Items

Metal Astragali



Inscribed Metal Astragali

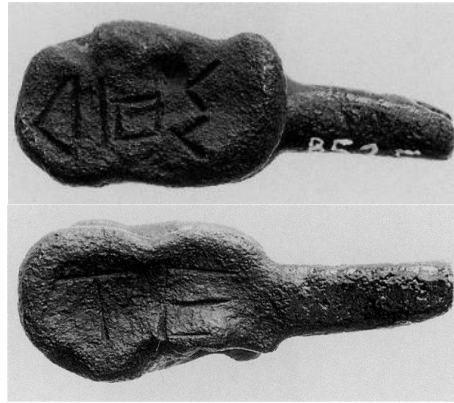


Louvre. Sb 2719
37×23 cm. 93.7 kg

Τάδε τὰγάλματα
[ἀ]πὸ λείῳ Ἀριστόλοχ[ος]
[κ]αὶ Θράσων ἀνέθεσαν τ[ὼ]-
πόλλωνι δεκάτην· ἐχάλκε[υε]
δ' αὐτὰ Πκα>σικλῆς ὁ Κυδιμένε[ος]



Inscribed Metal Astragali: Olympia



Olympia. B525
6.0x2.4x2.1 cm. 105g



Warsaw. 198383
4.6x3.0x2.4 cm. 159.6g



Olympia. B5565
4.5x3.0x2.7 cm. 213g

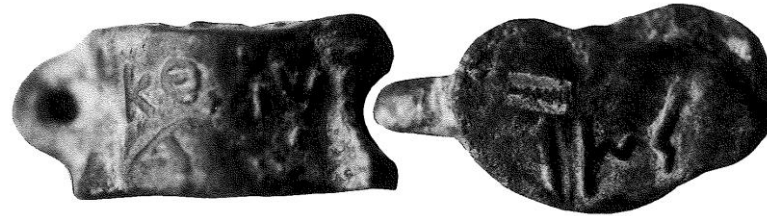


Olympia. B5566
5.8x4.0x3.5 cm. 415g

Inscribed Metal Astragali: Tyre



Münz Zentrum 1983. 5072
8.2×3.7×4.0 cm. 455 g



Moussaieff Collection
5.0×2.5×2.1 cm. 117.2 g



Geneva. 3253obis
4.2×1.8×1.9 cm. 56.5 g



Münz Zentrum 1979. 4068
4.3×3.6×3.6 cm. 131.79 g



Münz Zentrum 1981. 86
3.5×2.0×2.3 cm. 67.78 g

Inscribed Metal Astragali:

Unidentified



Geneva, CdN 2017-099
4.9×3.2×2.4 cm. 222.8 g



Gorny & Mosch 2002, 2610
4.5 cm. 157.4 g



Archaeological Center 2005, 59
4.1 cm. 119.1 g

Inscribed Metal Astragali:

Roman Empire



Pera Museum. PMA 6602B
25.8×15.6×13.3 cm. 25.0 kg



Pera Museum. PMA 6602A
27.2×15.6×12.6 cm. 33.8 kg



Pera Museum. PMA 6602C
21.8×12.6×11.1 cm. 16.8 kg

Inscribed Metal Astragali:

Roman Empire

IG V,2 125 — Arcadia, Tegea — reign of Trajan or Hadrian

Πό(πλιος) Μέμμιος Ἀγαθοκλῆς ἀγορανομήσας ἀνέθηκεν [ἐκ τῶν ἰδί?]-

ων τὸν οἶκον καὶ τὰ ἐν αὐτῷ σταθμὰ χαλκᾶ < σ[ῦν]

καὶ ἔλαφον < ΛΙ < ν' < Ἀταλάντην < ΛΙ κε' < ἀστράγαλον [ΛΙ α'?]

ἄλλον < ΛΙ < α' < ΟΥΝ < θ' < ἄλλον < ΛΙ < β' < ἄλλον < ΛΙ [<] δ' [<] Ἑρωτα [< --].

At least 7 standard weights:

Boar and deer: 50 libras

Atalanta: 25 libras

Astragalos: 1 libra

Other (astragalos): 1 libra 9 uncias

Other (astragalos): 2 libras

Other (astragalos): 4 libras

Eros: ---

[---]

Astragalus as a Weight Symbol



Warsaw, 142765
6.9×6.9×1.9 cm. 880.2 g



Athens (Canellopoulos), M 376
6.6×6.8×2.0 cm. 897.0 g



Athens (Canellopoulos), 106
6.2×6.2×3.3 cm. 903.7 g



Boston (MFA), 01.8288
6.0×6.0 cm. 929.2 g



Warsaw, 142751
7.0×6.9×2.6 cm. 1190.3 g



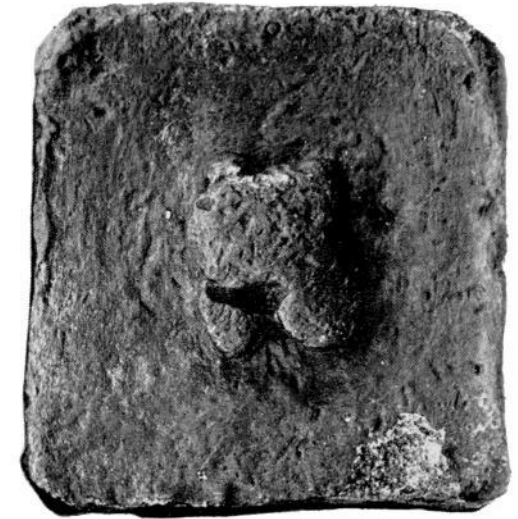
Athens (NMA), 1911-12, ΛΘ' 2
6.7×7.1×2.7 cm. 1299.5 g

Astragalus as a
Weight
Symbol:

Olynthus



Polygyros (ancient Olynthos), 34.23
7.0×7.5×2.0 cm. 812.5 g



Polygyros (ancient Olynthos), 31.266
6.4×6.7×2.2 cm. 896 g

Astragalus as a
Weight
Symbol:

Unidentified



Geneva, CdN 32562 bis
7.6×7.2×1.8 cm. 601.1 g

Ἀστυνόμου Βακχίου Πυρρίου | μνᾶ.

Astragalus as a
Weight
Symbol:

Unidentified



Auction Malter 2011, 38a
8.9×7.0 cm. 866.8 g



Auction Malter 2011, 38b
7.0×7.0 cm. 445.0 g

Astragalus as a Weight Symbol:

Unidentified



Pera Museum. PMA 1939
7.0×6.7×2.2 cm. 819.3 g



Pera Museum. PMA 1941
5.5×5.4×1.4 cm. 406.1 g



Pera Museum. PMA 3175
4.3×4.0×1.7 cm. 214.1 g

Astragalus as a Weight Symbol:

Unidentified



Pera Museum. PMA 2636
4.6×4.6×0.9 cm. 119.8 g



Pera Museum. PMA 2636
3.5×3.3×0.9 cm. 105.7 g



Pera Museum. PMA 1946
3.0×2.6×0.8 cm. 53.5 g



Pera Museum. PMA 1945
3.0×2.3×0.8 cm. 41.9 g

Astragalus as a Monetary Symbol



[3:1]



Boston, 11.1787
1.9×1.7 cm. 7.83 g



Ancient Agora (Athens), B 495
6.3×6.4×3.3 cm. 783.6 g



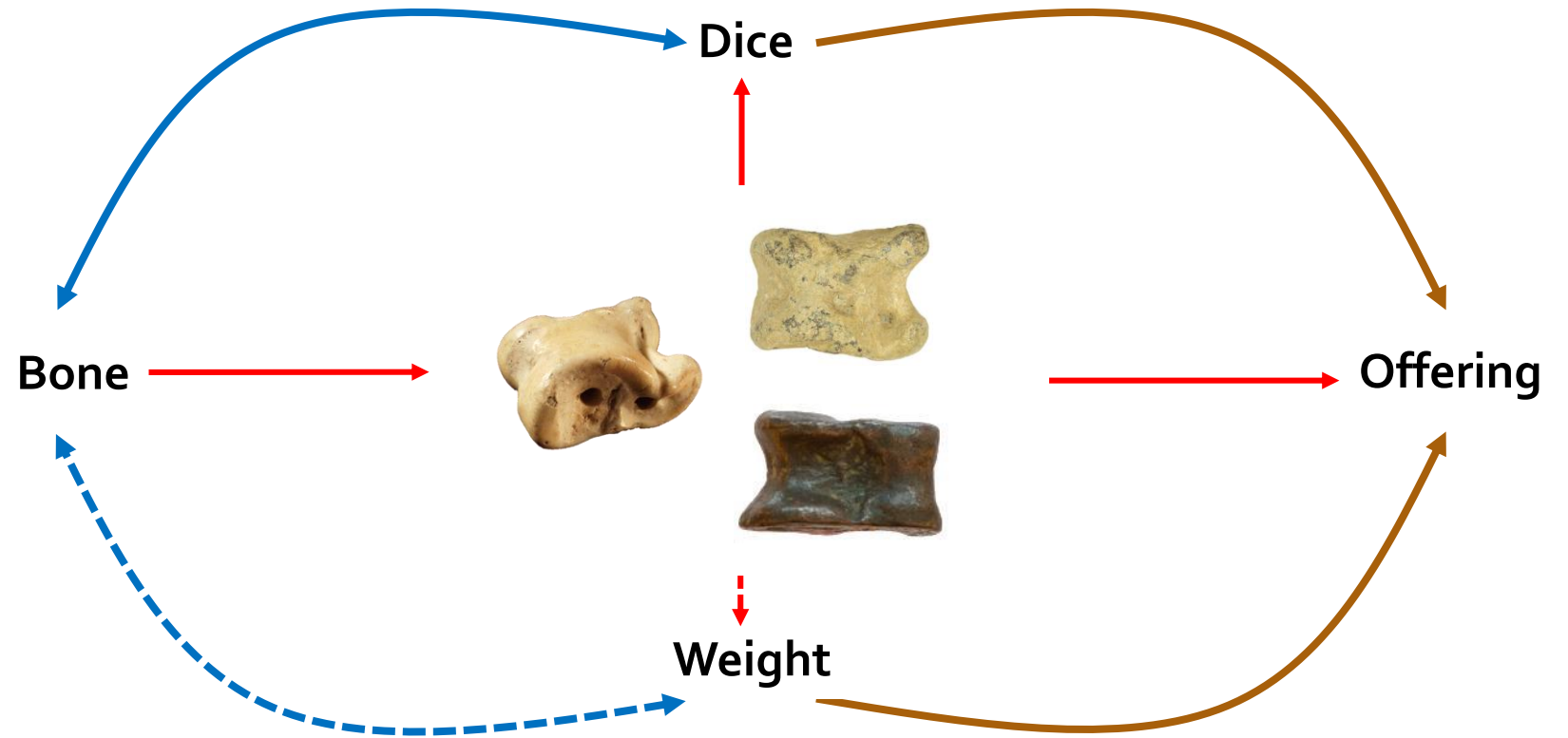
Στατέρ | Δεμόσιον Ἀθηναίων.

Astragalus as a Monetary Symbol:

Aes grave



A Polysemous Artefact



Tentative Reconstruction

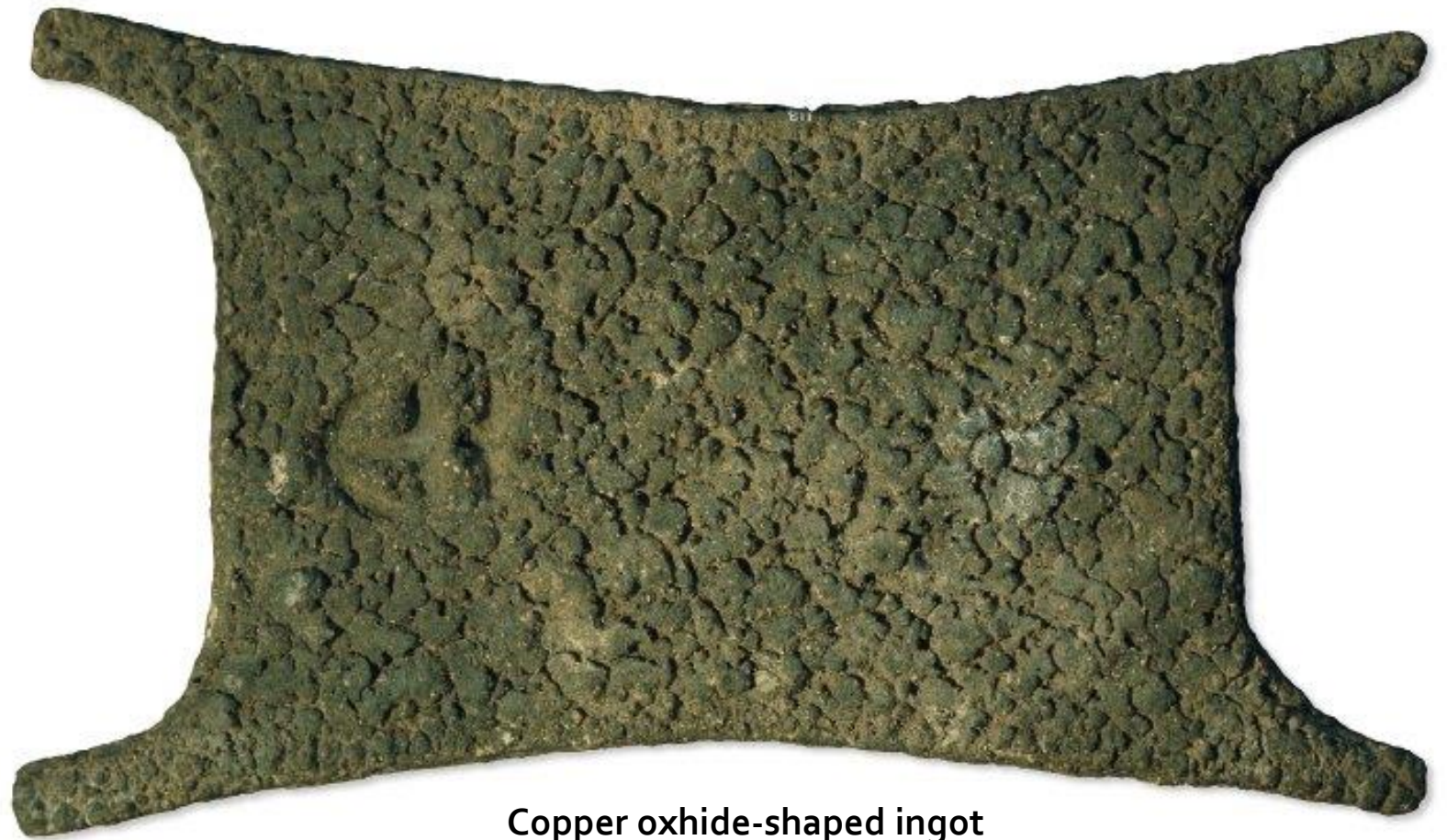
Timaeus, *Fragmenta* (FGrH IIIB, 566 F), 164 = Diodorus Siculus, V, 22, 2

Τῆς γὰρ Βρεττανικῆς κατὰ τὸ ἀκρωτήριον τὸ καλούμενον Βελέριον οἱ κατοικοῦντες φιλόξενοί τε διαφερόντως εἰσὶ καὶ διὰ τὴν τῶν ξένων ἐμπόρων ἐπιμιξίαν ξημερωμένοι τὰς ἀγωγάς. Οὗτοι τὸν κασσίτερον κατασκευάζουσι, φιλοτέχνως ἐργαζόμενοι τὴν φέρουσιν αὐτὸν γῆν. Αὕτη δὲ πετρώδης οὖσα διαφυὰς ἔχει γεώδεις, ἐν αἷς τὸν πόρον κατεργαζόμενοι καὶ τήξαντες καθαίρουσιν. **Ἀποτυποῦντες δ' εἰς ἀστραγάλων ῥυθμοὺς** κομίζουσιν εἰς τινα νῆσον προκειμένην μὲν τῆς Βρεττανικῆς, ὀνομαζομένην δὲ Ἴκτιν· κατὰ γὰρ τὰς ἀμπώτεις ἀναξηραινομένου τοῦ μεταξὺ τόπου ταῖς ἀμάξαις εἰς ταύτην κομίζουσι δαψιλῇ τὸν κασσίτερον.

"The inhabitants of Britain who dwell about the promontory known as Belerium are especially hospitable to strangers and have adopted a civilized manner of life because of their intercourse with merchants of other peoples. They it is who work the tin, treating the bed which bears it in an ingenious matter. This bed, being like rock, contains earthy seams and in them the workers quarry the ore, which they then melt down and cleanse of its impurities. **Then they strike it into the shape of knucklebones** and convey it to a island which lies off Britain and is called Ictis; for at the time of ebb-tide the space between this island and the mainland becomes dry and they can take the tin in large quantities over to the island on their wagons."

(transl. C.H. Oldfather, modified)

Tentative Reconstruction



Copper oxhide-shaped ingot
London (BM), 1897,0401.1535
70.5×41.5×5.2 cm. 36.9 kg

Tentative Reconstruction

**Metal astragali as
traditional metal ingots**
(see oxhide-shaped ingots)



**Bronze astragali as
traditional offerings**



**Standardized ingots
with a metrological scale**
(e.g. 1:2:4 or 1:3:6)

**Metal astragali as
standard of value**

Tentative Reconstruction

**Diogenes, *Politeia* (*Socratis et Socraticorum Reliquiae*, VB, 125), 164
= **Athenaeus, *Deipnosophistae*, IV, 49 (159c)****

Διογένης δ' ἐν τῇ ἑαυτοῦ Πολιτείᾳ νόμισμα εἶναι νομοθετεῖ ἀστραγάλους.

"Diogenes in his own *Republic* ordains by law (*nomotheteô*) that **knucklebones are to be the currency (*nomisma*)**."
(transl. S. Douglas Olson, modified)

Diogenes Laertius, *Lives of Eminent Philosophers*, VI, 2, 20; 71

Διογένης Ἰκεσίου τραπεζίτου Σινωπεύς. Φησὶ δὲ Διοκλῆς, δημοσίαν αὐτοῦ τὴν τράπεζαν ἔχοντος τοῦ πατρὸς καὶ παραχαράξαντος τὸ νόμισμα, φυγεῖν. [...] Τοῦ δὲ συγχωρήσαντος τὸ πολιτικὸν νόμισμα, οὐ συνείς, τὸ κέρμα ἐκιβδήλευσε καὶ φωραθεὶς, ὥς μὲν τινες, ἐφυγαδεύθη, ὥς δέ τινες, ἐκὼν ὑπεξῆλθε φοβηθεὶς.

"Diogenes was a native of Sinope, son of Hicesius, a banker. Diocles relates that he went into exile because his father was entrusted with the money of the state and **adulterated the coinage**. [...] When [Apollo] gave him permission to **alter the political *nomisma***, not understanding what this meant, **he adulterated the currency**, and when he was detected, according to some he was banished, while according to others he voluntarily quitted the city for fear of consequences."
(transl. R.D. Hicks, modified)

Tentative Reconstruction

**Metal astragali as
traditional metal ingots**
(see oxhide-shaped ingots)



**Bronze astragali as
traditional offerings**



**Astragalus as a
monetary symbol**



**Astragalus as a
weight symbol**



**Astragalus-shaped
weights**



**Standardized ingots
with a metrological scale**
(e.g. 1:2:4 or 1:3:6)

**Metal astragali as
standard of value**

**Metal astragali as
standard of weight**

Tentative Reconstruction



Tentative Reconstruction

Homer, *Iliad* 23.83–92

Μὴ ἐμὰ σῶν ἀπάνευθε τιθήμεναι ὅστέ' Ἀχιλλεῦ,
ἄλλ' ὁμοῦ ὥς ἐτράφημεν ἐν ὑμετέροισι δόμοισιν,
εὖτέ με τυτθὸν ἔοντα Μενοίτιος ἐξ Ὀπόεντος
ἤγαγεν ὑμέτερόνδ' ἀνδροκτασίης ὑπο λυγρῆς,
ἥματι τῷ ὅτε παῖδα κατέκτανον Ἀμφιδάμαντος
νήπιος οὐκ ἐθέλων ἀμφ' ἀστραγάλοισι χολωθείς·
ἐνθά με δεξάμενος ἐν δώμασιν ἱππότα Πηλεὺς
ἔτραφέ τ' ἐνδυκέως καὶ σὸν θεράποντ' ὀνόμηνεν·
ὥς δὲ καὶ ὅστέα νῶϊν ὁμῇ σορὸς ἀμφικαλύπτοι
χρύσεος ἀμφιφορεύς, τὸν τοι πόρε πότνια μήτηρ.

"Lay not **my bones** apart from yours, Achilles, but let them lie together, just as we were reared in your house when Menoetius brought me, still a little lad, from Opoeis to your country because of grievous man-slaying on the day I slew Amphidamus' son—fool that I was, but I willed it not—**angered over astragaloι**. Then the horseman Peleus received me in his house and reared me with kindly care and named me your attendant; so too let one coffer enfold **our bones**, a golden coffer with two handles, the one your queenly mother gave you."

(transl. A.T. Murray, modified)

Knucklebones or Weights?

Metal Astragali in the Classical World

Charles Doyen

Play and Games in Antiquity. Definition, Transmission, Reception

La Tour-de-Peilz, September 18, 2018