

A BULLET OF TISSAPHERNES

(PLATE V)

A LEAD sling bullet inscribed with the name of Tissaphernes forms the subject of the present article. Like other such missiles, the bullet is almond-shaped; it is 36 mm. long, 22 mm. thick, and weighs 40.423 g. (PLATE Va). It was reportedly found at Julia Gordus (the modern Gördes) in Lydia and is now in a private collection. As far as I can determine, the object is unique. By its inscription, it raises questions of some historical interest and illustrates the major changes in the technology of Greek warfare in the period after the Peloponnesian War.¹

Sling bullets were called in Greek *μολυβδῖς* or *μολύβδαινα* from the material or *σφενδόνη* from the weapon. They were projected from a sling, *σφενδόνη*, by a slinger, *σφενδοθήτης*. The sling, originally a weapon of hunters and shepherds, has a long history. It was known to the Egyptians, Assyrians, Phoenicians, and Etruscans; everyone is familiar with the story of its use by David against Goliath.² In the early Greek world, sling bullets have been found at neolithic sites in Thessaly, Macedonia, and Central Greece, slingers are portrayed in action on the Siege Rhyton from a Mycenaean Shaft Grave, and Schliemann found objects at Troy which he believed to be sling bullets.³ But the sling was no noble weapon, and thus rarely appears in early literature. The two possible references to it in Homer are somewhat questionable: one mentions a 'sling' for a broken arm, the other has been subject to varying interpretations. Pausanias and many since have taken it to refer to the weapon.⁴ The earliest certain mention is in Archilochus *frag.* 3.⁵

The slinger could achieve considerable accuracy with his missiles, but required long training. The art was the speciality of certain less-developed parts of the Greek world in Classical times: the hunters and shepherds of Acarnania, Aetolia, and Thessaly were proficient slingers. So, however, were the soldiers of Rhodes. But in general, the technique had little place in the battles of the city-states, which relied on heavy-armed hoplites fighting on plains for the control or destruction of arable land.⁶ In the west, on the other hand, slingers formed important auxiliaries to the armies of the city states, particularly of Syracuse. The force which Gelo offered to the Greeks during the Persian wars was to have included, according to the report, no fewer than 2000 slingers.⁷

¹ This paper owes its conception to the encouragement and advice of Professor Sterling Dow. Professor J. K. Anderson has also been kind enough to discuss the subject with me and to provide numerous helpful references. I am also indebted to the (anonymous) readers of the *JHS*, who generously offered corrections and additions.

² The basic works on slings and sling bullets are the two articles of G. Fougères, 'funda' and 'glans' in Daremberg-Saglio, to which the reader may be referred for the history and development of these instruments. See also the well-illustrated general account of M. Korfmann, 'The Sling as a Weapon', *Scientific American*, 229: 4 (October, 1973), 34-42.

³ Neolithic bullets: V. G. Childe, 'The Significance of the Sling for Greek Prehistory', *Studies Presented to D. M. Robinson* (St Louis, 1950), I. 1-5, with references to findspots and publications. Childe advanced the theory that the sling may have been a major weapon in prehistoric Greece while the bow played a minor role if any, an idea developed by

Korfmann, 'Sling' 42. Siege Rhyton: Emily Vermeule, *Greece in the Bronze Age* (Chicago, 1964), 100-5 with Plate XIV; Troy III: H. Schliemann, *Ilios* (New York, 1881), 437 f.; Troy II: *idem*, *Troja* (London, 1889), 118 f. The nature of the Trojan 'bullets', made of hematite or diorite and weighing up to 1½ lbs. is uncertain: Fougères, 'glans', 1668 f., thought that they are more probably amulets.

⁴ *Iliad*, 13.600, 716; on these, see the discussion of H. L. Lorimer, *Homer and the Monuments* (London, 1950), 301.

⁵ Later literary mentions are listed in Fougères, 'funda', 1363.

⁶ For the techniques of city-state warfare and its reliance on hoplites, see F. E. Adcock, *The Greek and Macedonian Art of War* (Berkeley, 1957), 1-13.

⁷ Herodotus VII. 158; for slingers and other light-armed troops in the west, see O. Lippelt, *Die griechischen Leichtbewaffneten bis auf Alexander den Grossen* (Weida, 1910), 55-9.

During the Peloponnesian War battles were fought all over the Greek world in territory and circumstances which demanded adaptation and innovation in military tactics. The light-armed troops, of which the slingers formed a part, came to assume greater importance. After the disastrous defeat of Demosthenes at the hands of the light-armed Aetolians in 426, the Athenians came to make greater use of such auxiliaries, and their success in using new techniques was shown in their victory at Sphacteria in the following year. At Sphacteria, slingers played an important role in defeating the invincible Spartan hoplite, and thereafter came to form regular auxiliaries to the Greek armies. In the discussions preparatory to the Sicilian expedition, for example, Nicias urged that slingers be included. His advice was heeded; when the fleet sailed, it contained a complement of 700 Rhodian slingers.⁸

The sling itself consisted of two strips of leather, linen or horsehair, each about three feet long, with a pocket, generally of leather, to hold the projectile. The sling was whirled around the head three times, then one end of it was released and the missile flew off by centrifugal force.⁹ Originally, stones, especially rounded river stones, were used; these were commonly the size of a fist and weighed as much as a pound. In spite of later developments, stones were never entirely replaced; they continued to be employed by the Roman legions. But at an early date artificial missiles soon came to be made. In the west, these took the shape of clay bullets the size of an egg; they could be heated and used to start a fire in the enemy's camp.¹⁰

Among the technological advances in the art of war in the late fifth and fourth centuries was the introduction of the lead sling bullet. In preserved accounts, the lead bullet first appears during the retreat of the Ten Thousand after the battle of Cunaxa. The Greeks were then at a severe disadvantage because the Persian archers could outrange the Cretan and the enemy slingers could reach farther than the Greek javelin-throwers. The Persians under Tissaphernes could thus harass the retreating Greeks with impunity. Xenophon, hoping to find a remedy for the situation, addressed his troops as follows:

ἡμεῖς οὖν εἰ μέλλομεν τούτους εἶργειν ὥστε μὴ δύνασθαι βλάπτειν ἡμᾶς πορευομένους, σφενδονητῶν τε τὴν ταχίστην δεῖ καὶ ἱππέων. ἀκούω δ' εἶναι ἐν τῷ στρατεύματι ἡμῶν Ῥοδίους, ὧν τοὺς πολλοὺς φασὶν ἐπίστασθαι σφενδονᾶν, καὶ τὸ βέλος αὐτῶν καὶ διπλάσιον φέρεσθαι τῶν Περσικῶν σφενδονῶν. ἐκεῖναι γὰρ διὰ τὸ χειροπληθέσι τοῖς λίθοις σφενδονᾶν ἐπὶ βραχὺ ἐξικνοῦνται, οἱ δὲ γε Ῥόδιοι καὶ ταῖς μολυβδίσι ἐπίστανται χρῆσθαι.

If we are going to keep them away so that they cannot hurt us as we march, we need slingers and cavalry as soon as possible. I hear that there are Rhodians in our army, most of whom are said to know how to sling. Their missile carries twice as far as the Persians', which only reach a short distance because they use stones the size of a fist. The Rhodians, however, know how to use lead bullets as well.¹¹

Xenophon, therefore, proposed that a special bonus be offered to any Rhodians who would volunteer to serve as slingers or to make more slings. As a result, a force of two hundred and fifty slingers was assembled and soon showed its value by driving back the Persians. A supply of lead providentially found in a village enabled them to make sufficient bullets.¹²

There is no substantial evidence to indicate that lead bullets were employed in the classical Greek world much earlier than their mention by Xenophon.¹³ The literature

⁸ The importance of these battles for the development of military tactics and techniques is brought out by J. G. P. Best in *Thracian Peltasts* (Groningen, 1969), 17–35; cf. Adcock, *Art of War*, 14–19. Sicilian expedition: Thucydides VI. 22, 25, 43.

⁹ Fougères, 'funda', 1363 f. with illustrations, Korfmann, 'Sling' 38.

¹⁰ Fougères, 'glans', 1609.

¹¹ *Anabasis*, III. 3.16.

¹² *Ibid.*, III. 4.15–17.

¹³ Lead sling bullets may have been known to the Minoans. Sir Arthur Evans found two examples in a LM III context at the palace at Cnossus 'in a medium which excludes any possibility of later

occasionally reports lead bullets found on the battlefield of Marathon, but this information seems to derive solely from Athenian antique dealers of the last century who would have had an obvious interest in raising the value of such small and undistinguished objects.¹⁴ In the fourth century, the use of lead bullets became widespread, and they remained an important projectile throughout the classical period.¹⁵

Lead is obviously the most efficient material for such projectiles. It is easy to cast, and provides the maximum weight in a small volume. The design of the bullets was also the most efficient; they were made in the shape of almonds to reduce air resistance, a form which calculations made in the nineteenth century have shown to be aerodynamically the most desirable. With their density and shape, the missiles could carry over large distances; their effective range has been estimated at as much as 400 m.¹⁶

The bullets were cast in clay moulds of which a few have survived. The moulds show that the bullets were poured either in strings or in the shape of trees with their branches so that the individual bullets could easily be broken off.¹⁷ Hence, they commonly have slightly flattened ends. Any inscription to be placed on the bullet had to be incised backwards on the mould. Since the bullets were manufactured in large quantities, the inscriptions are often carelessly written and occasionally appear retrograde, a phenomenon which has sometimes led investigators erroneously to date them in the Archaic period.

Most bullets are plain almond-shaped pieces of lead, but many have inscriptions or decorations which aid in identifying them and associating them with historical events. Some are decorated with a symbol representative of the act of striking: a spear-point, an eagle, a scorpion, or something similar. These are generally accompanied by an inscription; most of the inscribed bullets, however, bear only an inscription with no symbol.¹⁸

intrusion': Sir A. Evans, *The Palace of Minos* (London, 1928) II. 344 f. The bullets, now visible in the Ashmolean Museum, are larger and more irregularly shaped than the classical examples. They bear a striking resemblance to Roman sling bullets. In the face of Evans's description of their findspot, it is impossible to question their authenticity, but, in any case, they remain an isolated phenomenon, and one which seems to have no connection with the classical development. The remarks of A. Snodgrass, *Early Greek Armour and Weapons* (Edinburgh, 1964), 167, are somewhat misleading. He noted that there were 'some' lead bullets from Cnossus, and that they 'differed little from specimens of classical date'. Evans was, in fact, concerned to describe the differences between the LM III bullets and classical specimens (*loc. cit.*). No classical sling bullet which can be dated with any certainty to the period before Tissaphernes has been published. Some bullets were found, for example, at Olympia (*Olympia* IV. 178), a site noted for its archaic remains. By the time they were published, the excavation had reached Roman levels. Since their context was not described, it seems difficult to attach an early date to them.

¹⁴ Marathon: Fougères, 'glans', 1609. A lead bullet in the British Museum is 'said to have been found on the battlefield of Marathon': British Museum, *A Guide to the Exhibition Illustrating Greek and Roman Life* (London, 1929), 94; it is not possible to tell from the illustration (Fig. 96) whether it is inscribed or not. Another, in the Ashmolean Museum and unpublished, is 'said to be from

Marathon'; it bears a *beta* on one side and an *omicron* possibly followed by an *iota* on the other. The inscription will thus be the abbreviation of *ΒΟΙΩΤΩΝ* (*cf.* Vischer, note 18 below, 260 no. 25). Even if the provenance of these bullets were certain, there would be no reason to associate them with the battle of Marathon, in which the Greek forces were composed of hoplites. Without specific information, it is not possible to determine the date of these bullets. For sling bullets of which the findspot of Marathon were certain, the most likely historical association would perhaps be with the Chremonidean War, in which fortresses were constructed in the vicinity of Marathon: see J. McCredie, *Fortified Military Camps in Attica* (Princeton, 1966), 35-46 (remains), 102-15 (history).

¹⁵ See the two articles of Fougères (note 2 above) *passim* for the later history of slings and bullets, with which I am not here concerned.

¹⁶ Shape: Fougères, 'glans', 1609; range: 'funda', 1366, Korfmann, 'Sling' 37.

¹⁷ For illustrations of surviving moulds, see Zangemeister (below, note 19), xi f., *Olynthus* X. 419 f., 437 with fig. 23 and note 148 for reference to other moulds, and Varoukha-Christodoulou (below, note 19), 333 f.

¹⁸ Symbols: Fougères, 'glans', 1610 with illustrations; for further examples and more extensive illustration, see W. Vischer, 'Antike Schleuder-geschosse' in his *Kleine Schriften* (Leipzig, 1878), II. 240-84; see also the works cited below, n. 19.

Historically, the inscribed bullets are of the greatest interest, but, because of the nature of the inscriptions, few of them can be dated. The inscriptions fall into three classes: (1) an appropriate exclamation: *nika* (conquer), *dexai, labe* (take it), *papai* (woe), *haima* (blood), *trogalion* (a candy or almond or the like); (2) the name of a city or people; (3) personal names, either in the nominative or genitive case.¹⁹ The last class is the most common. The names in the nominative have been explained as those of the manufacturer, or as the subject of such verbs as *sphendonan* (to sling) or *ballein* (to throw). The most important and largest class of names are those in the genitive, which are presumably control marks indicating 'ammunition of (or issued by) X'; the names of cities may be similarly explained.

Among the few such names which can be identified appear those of heads of an army or generals; the excavations at Olynthus, for example, have produced many bullets inscribed with the name of King Philip, who destroyed the city in 348 B.C., and of his subordinate commanders.²⁰ Most of the names, however, appear to be those of commanders of brigades of slingers, obscure figures not otherwise mentioned in the sources. The great majority of surviving bullets, therefore, cannot be identified or dated with any certainty. An important exception is formed by bullets found in excavations, of which the largest number come from Olynthus and may be associated with the destruction of the city.²¹

The present bullet is inscribed *TICCAΦEP* [. . .]. The last letters are illegible, but presumably contained the genitive ending of the name Tissaphernes. This raises three possibilities: either the bullet was issued by Tissaphernes, the famous satrap of Lydia from 413 to 395 B.C., or by someone else of the same name, or it is a counterfeit.

False sling bullets, at least Roman ones, are well known. C. Zangemeister exposed and published large numbers of them in a supplement to *CIL*.²² These are readily distinguishable from the genuine by their odd shapes and by the lettering, which tends to be incised rather than raised; that is, the counterfeiter probably scratched inscriptions into real, but blank, bullets rather than take the trouble to make new moulds. In general,

¹⁹ For the inscriptions, see the useful survey of M. Guarducci in *Epigrafia Greca* (Rome, 1969), II, 516–24 as well as the following publications of inscribed bullets, which I have arranged in approximate order of their importance:

Olynthus: D. M. Robinson, *Excavations at Olynthus X: Metal and Minor Miscellaneous Finds* (Baltimore, 1941), 418–43 (many inscribed bullets datable to 348 B.C.).

Cyprus: I. Michaelidou-Nicolaou, 'Ghiande missili di Cipro', *Annuario*, 31/32 (1969–70), 359–69 (60 bullets, most inscribed and illustrated; dated by letter forms to the late fourth/early third centuries and assigned to the war between Ptolemy I and Demetrius Poliorcetes. They were apparently not used by native troops, for slings seem not to have been a weapon native to Cyprus). My thanks to Dr Miranda Marvin for this reference.

Camirus in Rhodes: A. Maiuri, *Nuova silloge epigrafica di Rodi e Cos* (Florence, 1925), 249–52 (some illustrated, none dated); reproduced with additions in M. Segre and G. Pugliese-Carratelli, 'Tituli Camirenses', *Annuario*, 11/13 (1949–51), 274 f.

Louvre: M. Michon in *Bull. Soc. Ant. Fr.*, 65 (1894), 268–71 (some from Eleusis, Athens and Rhodes).

Region of Athens: I. Varoukha-Christodoulou,

'Symbolē eis ton Chremōnideon Polemon', *Arch. Eph.*, 1953–4, part III, 332–4 (bullets apparently from the Chremonidean War, 265–63); see 332, n. 13 for reference to other bullets in Greek museums. (Reference from Professor Dow).

Corcyra: *IG*, IX.1. 830–44.

Cnossus: *I. Cret.*, I.viii. 43–7.

Macedonia, region of Olynthus: W. N. Bates, 'Two Inscribed Sling Bullets from Galatitsa', *AJA*, 34 (1930), 44–6.

Athens: A. W. Parsons, 'Klepsydra and the Paved Court of the Pythion', *Hesp.*, 12 (1943), 241 f. (Bullets attributed to the time of the siege of Athens by Sulla).

For other inscribed bullets, mostly obtained in Athens but of uncertain provenance, see W. Vischer (above, note 18), who provides a bibliography of earlier publications. The exclamations on the Greek bullets lack the pithiness of the Latin, where such phrases as *peto Octaviani culum* are to be found; for them, see C. Zangemeister, *Glandes plumbeae latine inscriptae* (= *Ephemeris epigraphica*, VI, 1885). The inscriptions of the Sicilian clay bullets are also of a different nature, often including the name of the tribe or phratry: see Guarducci, II, 522 f. with references.

²⁰ *Olynthus*, X, 418–43.

²¹ See above, note 19.

²² Zangemeister (above, note 19), 88–142.

they are poor imitations of bullets from the Italian civil wars, and are readily explicable in terms of demand for such *curiosa*.

The present bullet resembles the genuine article in all respects: size, shape, weight, and raised lettering. When found, it was covered with a thick whitish patina. The seller is reported to have had no knowledge of the nature of the object. It can hardly be a modern counterfeit. The only aspect which might raise some doubt is the shape of the letters: the *rho* and *phi* are taller than the others, and the open two-barred *sigmas* are almost lunate, giving the writing a rather cursive appearance (PLATE Vb). The irregularity is readily explicable by the circumstances of manufacture: the letters were scratched on a clay mould, probably in the course of production of vast numbers of bullets. The care which a stone-cutter would normally exercise is hardly to be expected. The *sigmas* also are not without parallel: a lunate *sigma* appears on a Greek tablet from Persepolis datable to 509–494 B.C., and the form makes frequent appearances on Attic vases in the fifth century. It would thus not be out of place on a bullet of the time of Tissaphernes.²³

As to the second possibility, two other Persians named Tissaphernes are indeed known. Both of them, however, lived in the central provinces of the Persian empire in an earlier age; neither had anything to do with the Greeks.²⁴ No other Tissaphernes is known to have lived at a time or in a position where his name might appear in Greek on a sling bullet. The evidence is therefore strongly in favour of the notion that the present bullet was indeed issued by the famous satrap of Lydia.

The evidence of Xenophon suggests that the slingers employed by Tissaphernes in 401 were unfamiliar with the use of lead bullets. Tissaphernes seems to have learned from his exposure to what may have been a recent innovation in military technology. When he returned to Asia Minor to take charge after the defeat and death of Cyrus the Younger, he adopted the new technique of using lead sling bullets in his own army. The bullets could have been issued for the use of Greek mercenary slingers, perhaps even Rhodians. Greek mercenary troops appear frequently in the service of the Persian satraps of Asia Minor from the late fifth century on. They were usually hoplites hired to supplement the light-armed troops and cavalry with which the Persian armies were already well provided.²⁵ Such, for example, were the Arcadians employed by Tissaphernes' predecessor Pissuthnes.²⁶ Tissaphernes himself employed Greek mercenaries in the campaign against Dercylidas, and had a guard of Arcadians and Milesians in his service when he was executed in 395.²⁷ Under his successor, Tithraustes, a Rhodian named Timocrates rose to high position, but it is not known whether he commanded heavy- or light-armed troops.²⁸ In

²³ *Sigma* from Persepolis: R. T. Hallock, *Persepolis Fortification Tablets* (Chicago, 1969) 2 with note 4, where the editor remarks that the letter is not completely clear. For early lunate sigmas in general, see Guarducci, I. 377 and J. M. Wright, 'The Origin of the Sigma Lunatum', *TAPA*, 27 (1896), 79–89.

²⁴ For them, see F. Justi, *Iranisches Namenbuch* (Marburg, 1891), 164, s.v. *Čiθrafarnā*, the Persian form from which the Greek Tissaphernes was derived; cf. M. Mayhofer, *Onomastica Persepolitana* (Vienna, 1973) 258, no.8.1885 Zitraparna, and R. Schmitt, "Iranica auf kleinasiatischen Inschriften", *Die Sprache* 17 (1971) 177–80 (a variant of the same name in the Greek form Sisiphernes).

²⁵ Use of Greek troops by the satraps is briefly discussed by H. W. Parke, *Greek Mercenary Soldiers* (Oxford, 1933), 14 f., 21, and in more detail for the fourth century, 57–62. The subject is surveyed by

J. Roy, 'The Mercenaries of Cyrus', *Historia* 16 (1967) 287–323, esp. 320–3; his whole analysis of the composition and nature of the most famous mercenary army, the Ten Thousand, is of considerable interest. Greek mercenaries in Persian service at the time of Tissaphernes frequently appear in the *Hellenica* of Xenophon: see e.g. III. 1.13 (in the service of Mania, satrap of Aeolis under Pharnabazus), III. 1.16, 17 (Greek garrisons of Neandria, Ilium, Cocylum and Cebren), and the references below.

²⁶ Thucydides, III. 34.

²⁷ Xenophon, *Hellenica*, III. 2.15, Polyaeus, VII. 16.1. Note also Phalinus the Greek, who had risen to high position under Tissaphernes by Cunaxa as an expert in hoplite fighting: Xenophon, *Anabasis*, II. 1.7.

²⁸ Xenophon, *Hellenica*, III. 5.1.

any case, the composition of the Ten Thousand themselves, mercenaries hired by a Persian, shows that light-armed troops, including slingers, were employed as well as hoplites.

It is not necessary, however, to suppose that the use of lead bullets would have been confined to Greeks. In his own territory, Tissaphernes had a city which prided itself on its slingers. Aspendus in Pamphylia issued a vast series of silver staters from about 400 through the third century on which the reverse type was a slinger aiming his sling. The city was the greatest naval base of the Persians on the south coast of Asia Minor, and presumably supplied troops to the satraps. That slingers would be prominent among such troops is evident from the type of the coins, which is hardly to be explained otherwise. Since the people of Aspendus wrote in the Greek alphabet, it is entirely possible that lead sling bullets inscribed in Greek could have been issued for their use.²⁹

The present bullet may therefore be considered as one issued by Tissaphernes between 401 and 395 for the use of Greek or Aspendian troops. It is of some historical interest as illustrating the passage of Xenophon quoted above and the subsequent spread of military technology. It would thus be the earliest known datable lead sling bullet. It also provides the only certain epigraphical attestation of the Greek form of the name Tissaphernes.³⁰

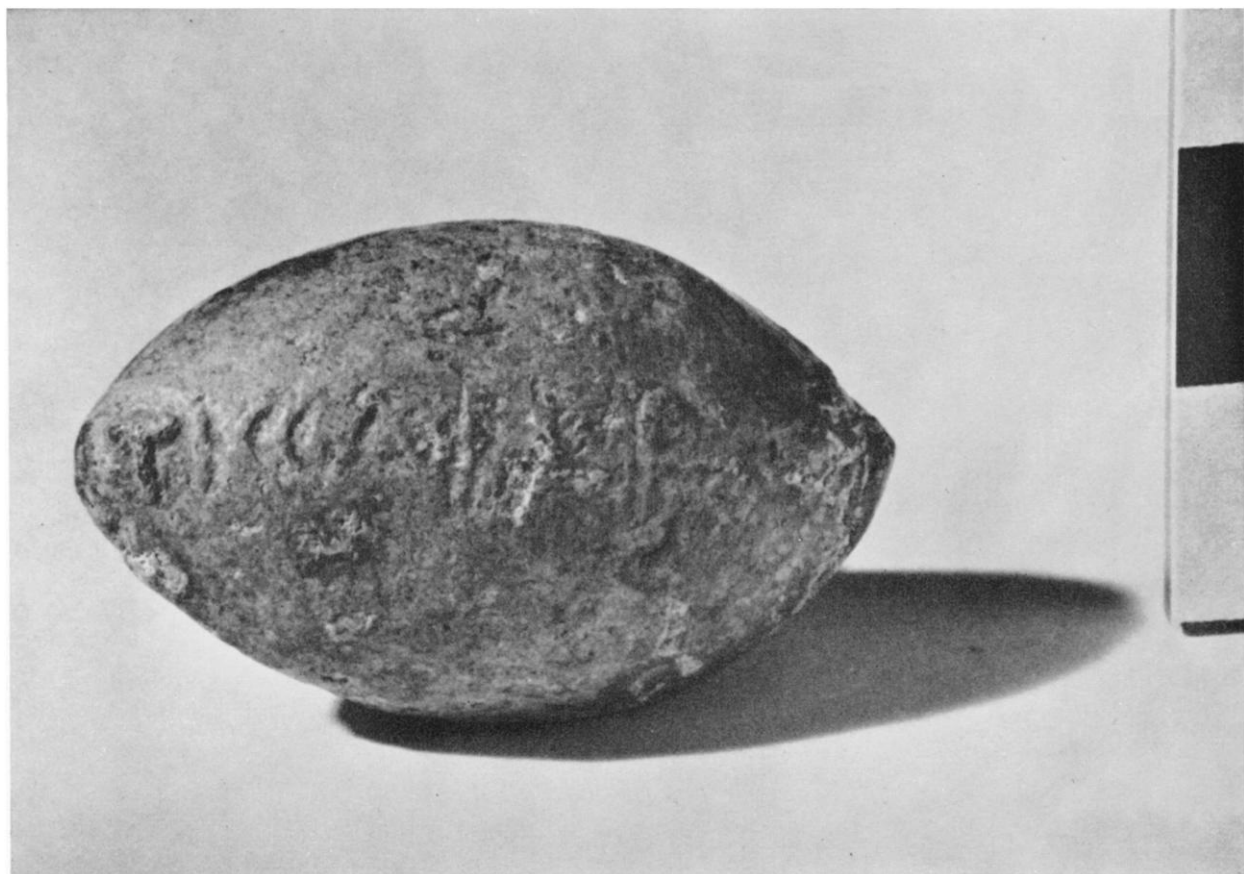
*University of Massachusetts,
Boston.*

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²⁹ Coins: *BMC Lycia, Pamphylia and Pisidia*, lxxii f., 95–101; for more numerous and better illustrations, see *SNG von Aulock, Pamphylia*, Taf. 146–8. The series has been dated by C. Kraay, 'The Celenderis Hoard', *NC* 1962.14; cf. C. Kraay and M. Hirmer, *Greek Coins* (London, 1966), 362 and plate 192. The Greeks, by a prevalent sort of folk etymology, derived the name Aspendos from *σφενδόνη*, sling, as they did that of the Balearic Islands, another place famous for its slingers, from *βάλλειν*. In fact, the town was called *Estwediys* by its natives, and it is this name which appears on the coins. The pun, in other words, would not have been obvious to those who issued the coins, and it is not unreasonable

to presume that the type of the slinger reflects the local importance of such troops, rather than appearing as a mere canting symbol.

³⁰ The coins attributed to Tissaphernes do not bear his name: *BMC Ionia*, 325, B. V. Head, *Historia Nummorum* (Oxford, 1911), 597, 699. His name appears in the Lycian form *Cizzaprñnã* in lines 11 and 14 of the north side of the Xanthos stele: *Tituli Asiae Minoris* (Vienna, 1901), 44. In a fragmentary inscription of c. 410, (IG i² 113, line 39) which apparently records the grant of Athenian citizenship to Evagoras of Cyprus, the name of Tissaphernes has been restored; the stone reads . . . *ΣΑΦΡΕΝΕΝ*.



(a) Lead bullet of Tissaphernes: scale of 1 cm.



(b) Inscription on bullet: same scale.

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