

Xenophon's Hedgehogs and the Studded Achaemenid Snaffle Bit

خاریشت‌های گزنفون و لگام قُپه‌دار هخامنشی

Daniel T. Potts^{1*}

¹ Institute for the Study of the Ancient World, New York University, USA.

Corresponding author: daniel.potts@nyu.edu

دنیل تی. پاتس^{۱*}

^۱ مؤسسه مطالعات جهان باستان، دانشگاه نیویورک، ایالات متحده آمریکا.
نویسنده مسئول: daniel.potts@nyu.edu

ABSTRACT

Since the late 19th century, a particular type of bit with studded cannons has been documented at archaeological sites spread from Greece to India. Similarities amongst these bits have often been noted, but only gradually did scholars begin to confidently ascribe this type to the Achaemenids. Since the discovery of one such bit on the Acropolis of Athens, scholars have also linked these finds with Xenophon's reference in *On the Art of Horsemanship* to bits with "hedgehogs", i.e., spikes or studs, on the cannons. The present article discusses these bits in light of Xenophon's text and suggests that they were used exclusively for schooling, not everyday riding, and are indeed distinctively Achaemenid.

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چکیده: از سده نوزدهم نوع خاصی از دهنه اسب با لگام قُپه‌دار از محوطه‌های باستانی گوناگون یافت شده که از یونان تا هندوستان گسترده‌اند. به شباهت‌های بین این دهنه‌ها اشاره شده، اما اخیراً باستان‌شناسان موفق شده‌اند با اطمینان خاطر این گونه دهنه را به هخامنشیان نسبت دهند. از هنگام کشف نمونه‌ای از این گونه دهنه در آکروپولیس آتن، پژوهشگران این یافته را با اشاره گزنفون به دهنه‌های موسوم به «خاریشت» در کتاب هنر پرورش و نگهداری اسب مربوط دانسته‌اند که به برجستگی‌ها یا قُپه‌هایی روی لگام اشاره می‌کند. مقاله حاضر تلاش می‌کند این نوع لگام را در پرتوی نوشته گزنفون بررسی کند و چنین پیشنهاد می‌کند که از آن‌ها صرفاً برای تربیت اسبان استفاده می‌شده و کاربرد روزمره نداشته‌اند و به‌طور قطع پدیده‌ای هخامنشی هستند.

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“a disobedient servant and a disobedient army are of course useless; and a disobedient horse is not only useless, but often behaves just like a traitor” — Xenophon, *On the Art of Horsemanship* 3.6

1. Introduction

A bit may be defined as “a structure passing through the horse’s mouth and connected to the rider’s hands by the reins” (Clayton and Lee, 1984: 193). The snaffle (Dutch *snavel*, German *Schnabel*) bit is often though not always jointed, such that the two halves of it or “cannons” are joined by a ring (Hartley Edwards, 1963: 58-65). As Clayton and Lee explain, “The jointed snaffle is supposed to act on the tongue, bars,¹ lips, and corners of the mouth. It is said to have a nutcracker action, in which the tongue is pinched between the two arms of the mouthpiece” (Clayton and Lee, 1984: 195). Hartley Edwards designated one group of snaffle bits “strong” by which he meant that they are meant to be used on “strong-mouthed animals” and may be fitted with rowels, studs or spikes. He wrote, “They are not nearly so fierce as they perhaps look at first sight, and their purpose is to distract the horse by encouraging him to mouth his bit, and so to make it difficult for him to seize hold of it and tear away like an express train,” thereby providing the rider with greater control (Hartley Edwards, 1963: 63).

The most severe form of such “strong” snaffle bits is certainly one in which the two cannons of the bit are spiked. An early example from China (Fig. 1) from Kaifeng in Hunan of Western Zhou Dynasty date (1046-771 BC) in the Royal Ontario Museum (Currelly, 1928: 8); a bronze bit with spiked cannons from a kurgan at Uigarak in Chorasmia (Yablonsky, 1995: Fig. 59; Takahama, 2020: Fig. 10.4); and a Thracian or Anatolian snaffle bit in the Metropolitan Museum of Art, thought to date to the 3rd century BC, illustrate the widespread use of bits with studded or spiked cannons across ancient Eurasia (<https://www.metmuseum.org/art/collection/search/29341>). Nor was their use confined to antiquity. In the late 19th century British military veterinarians in India lamented the fact that horses had been “for generations past ridden with spiked bits” (Meyrick, 1881: 384) and that “the use of spiked bits in horses’ and ponies’ mouths... often inflicts considerable injury on the jaw, and always severe pain” (Poyser, 1882: 263). One went so far as to assert that “the spiked bit... is in almost universal use through the East” (Nunn, 1899: 433). In reaction to this situation, another British authority on horse-breeding urged his readers to “refrain from the use of the spiked bit

which absolutely ruins the horse’s mouth for life” (Pease, 1896: 53). In 1910 animal rights activists reported that almost 800 spiked bits were confiscated that year in Naples (Mele Barese, 1910: 42) and the use of spiked bits was not outlawed in India until 1965 (Gandhi, Husain and Panjwani, 2006: 28).

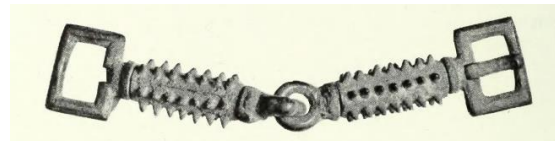


Fig. 1. Bit from Kaifeng in Hunan of the Western Zhou Dynasty (1046-771 BC) in the Royal Ontario Museum, after Currelly 1928: 8.

In the Iranian world the studded or spiked snaffle bit has long been associated with the Achaemenids. The historiography of this topic is not straightforward, however, and forms the subject of the present communication.

2. A studded bit from Gori (Georgia)

Sometime prior to 1882, when his sphere of operations shifted from the Caucasus to the Trans-Caspian arena, the Russian General Alexander Vissarionovich Komarov (1830-1904), who had a deep interest in both ornithology and archaeology, was given a number of objects collected unsystematically by local villagers at the ancient cemetery of Gori in Georgia. The circumstances of their discovery are unstated and all that is known is that “some discovered bronze objects were presented to General Komaroff” (Chantre, 1885: 147). Komarov’s interest in archaeology is well-known. In 1872, the Society of Friends of Archaeology in the Caucasus was created (Chantre, 1886: 102), and in 1881, when it held its first archaeological congress at Tbilisi, attended by c. 700 people, Komarov served as its president (Anonymous, 1881a: 432; Anonymous, 1881b: 599).

Among the objects from Gori presented to Komarov was a horse bit (Figs. 2-3) which later entered the collection of the Georgian Museum in Tbilisi (Potratz, 1941-1944: 19, n. 62). Documented by the prehistorian Ernest Chantre (1843-1924) who was in the Caucasus in 1879, 1881 and 1883 (Chantre 1882: v, vi, xvi; Chantre, 1885: 13, 14), the bit was first published by the physician Benoît Jean-Baptiste Charvet (1820-1899), a “Dauphinois curious about things archaeological” (Courtois

¹ “The horseman’s term for the lower interdental space.” See Bennett 2010: 27.

d'Arcollières, 1902: CI), whose excavation experience began in 1845 when he worked at La Buisse (Müller, 1909: 125). In fact, in his multi-volume work on the archaeology of the Caucasus, Chantre simply quoted the description of the bit directly from Charvet's article (Charvet, 1884; Chantre, 1885: 152-153). Nor is it surprising that Chantre turned to Charvet for a specialized publication of the Gori bit. An excellent rider himself, Charvet had been collecting harnesses, bridles and bits from all over the world since his youth (Villenoisy, 1899: 283). So renowned was he for his knowledge in this field that, as Léo Testut (1849-1925) noted in 1891, Charvet had "made a specialty of the study of the harnessing of the horse in different epochs of history and prehistory" and "possesses today, in this field an absolutely unique collection of objects" (Testut, 1891: 7).² Moreover, in addition to collecting horse tack, Charvet was a pioneer in experimental archaeology for he had replicas of bits manufactured which he then tested himself on his horses (see e.g. Charvet, 1885; Charvet, 1887).

The Gori bit is a snaffle bit which Charvet described as follows:

"It is a broken [jointed] bit; each branch has been cast separately and has four holes.... one in the middle of the branch, curved symmetrically backwards, is oval, 2 centimeters in vertical diameter and 1.5 centimeters in horizontal diameter for the reins. Two centimeters above and below the first hole is a 0.5-centimeter hole, the upper one to receive the headpiece of the bridle, the lower one for a false curb chain. Finally, at the end of the cannon, there is a vertical ring on one branch and a horizontal ring on the opposite branch to form a link or hinge in the middle of the bit.

Each cannon is characterized, at four points diametrically opposed from top to bottom and front to back, by a line consisting of a series of blunt protrusions resembling nail heads.... the horse's obedience was not achieved by a rigid bit with long shanks acting as a lever whose resistance was at the curb chain, but rather by various arrangements of roughness on the bars, which caused pain to the gums to varying degrees, depending on the use of a particular combination recognized as effective for a particular degree of sensitivity." (Charvet, 1884: 271, 273-274)



Fig. 2. Bit from Gori after Chantre 1886: Pl. 61.

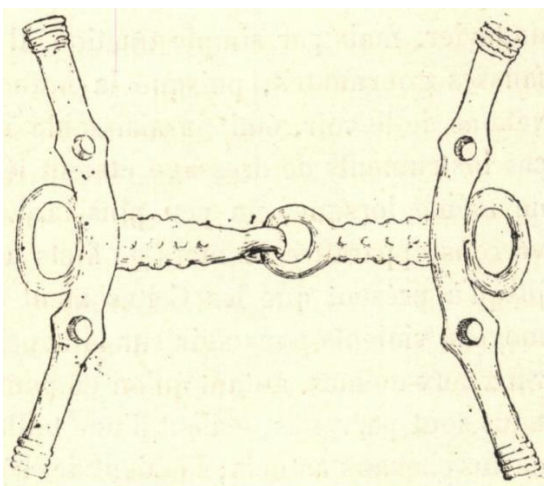


Fig. 3. Bit from Gori after Ormeaux 1888: Fig. 7.

Four years later A.L. des Ormeaux published an article on a bit from Møringen (mod. Mörigen, Switzerland)³ in which he drew attention to the Gori exemplar. Ormeaux, however, was concerned only with the attachments for the reins and headstall and made no reference to the studs on the cannons (Ormeaux, 1888: 59, Fig. 7).

² Under a note on "Bizarre Collections" it was reported that "Doctor Charvet, of Grenoble, possesses a collection of objects of all periods, related to the horse, books, bridle bits, spurs, reins, collars, etc.". See Anonymous 1885: 460. When Charvet's collection was sold after his death, it comprised 116 bits, 98 spurs,

55 stirrups and a further 55 miscellaneous items including horse shoes and cheekpieces. See Charvet, 1899; Mennessier de La Lance, 1915: 202. Wherever French or German appears in a work cited here, it is in the author's own English translation.

³ Originally published in Bertrand 1873.

3. A studded bit from the Acropolis at Athens and Xenophon's Recommendations

In 1888, an important discovery was made on the Acropolis of Athens. Excavations that year were concentrated in an area bounded by the southern and eastern sides of the Parthenon, the western side of the Acropolis Museum, and the southern rampart of the Acropolis itself. Describing them, the French scholar Théodore Reinach (1860-1928) wrote, "As M. Cavvadias⁴ and his associates were not content with relatively deep sondages, but stripped everything, drastically, from the present level down to the bare rock, that is to a depth of ten meters, it was possible to distinguish three superimposed phases in the southeastern angle of the Acropolis, corresponding with historical and artistic periods." The earliest level contained Mycenaean material. Above this was a layer of tuff. As Reinach noted, "This tuff bed was itself covered with buildings and sculptures made of the same material, many fragments of which can still be found today: these are works dating from before the Persian Wars, which were undoubtedly destroyed by the Persians. The third layer, the 'Cimon embankment,' is made up of imported earth and rubble" (Reinach, 1888: 240).

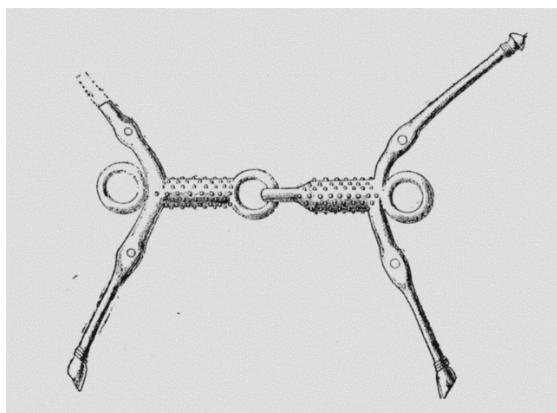


Fig. 4. Bit from the Acropolis at Athens after Lechat 1890: Fig. 1.

Aside from the architecture and stratigraphy of the Acropolis (Cavvadias and Kawerau, 1907), the excavated sculpture generated the most interest (Lechat, 1903). Among the bronze smallfinds from the 1888 Acropolis excavations, alluded to only in passing by the excavators (Cavvadias and Kawerau, 1907: 35-42), was a bronze bit (Fig. 4). Abel Hector Gotteland (1851-1925), chief engineer of the French Public Works Mission at Athens (Anonymous, 1886:

⁴ Panagiotis K/Cavvadias (1850-1928), head of the Greek Archaeological Service and excavator, together with Georg Ferdinand Kawerau (1856-1909), of the Athenian Acropolis from 1882 to 1890.

149), sent Charvet a precise drawing of the Acropolis bit which measured 11 x 23 cms and weighed 720 g (Charvet, 1891: 93). In an address to the Anthropological Society of Lyon delivered on March 2nd, 1889, Charvet pointed to the fact that the bit from Athens was "in all respects similar to that represented in the atlas of the volume on the prehistory of the Caucasus in the work of M. Chantre... found in the necropolis of Gori in Georgia and coming from the collection of General Kommeroff". Charvet added, "It is thus probable that that of Athens is nothing but an imitation of that of Gori, an imitation resulting from various causes, wars and invasion, commerce and perhaps above all importations by itinerant metalsmiths" (Charvet, 1889: 80).

In a subsequent article, Charvet introduced a different line of enquiry. He wrote that, "Remembering my early readings of Xenophon (b. 431 BC) [*On the Art of Horsemanship*] at the beginning of my hippological studies, I hurried to re-read the chapter on equitation by this author, but my embarrassment this time was quite great after reading and comparing the various translations of half a dozen authors on the technical sense of the famous chapter X" (Charvet, 1891: 94). Charvet proceeded to name six editions⁵ which were either flawed because their translators were Hellenists with no knowledge of horses, or because they were cavalry officers with a defective knowledge of Greek. One translation, however, by Charles Louis Adélaïde Henri Mathevon, baron de Curnieu (1811-1871), stood out above the rest (Curnieu, 1840), for Curnieu had been both a cavalry general and director of the *École de cavalerie de Saumur*, France's military academy for cavalry officers, as well as a more than competent Classical scholar. Charvet paraphrased several lines from Curnieu's translation of Xenophon describing bits. These are given below in the Loeb Classical Library translation:

"To begin with, you should possess two bits at least. One of these should be smooth [λεῖος] and have the discs of a good size; the other should have the discs heavy and low, and the teeth [έχῆνος] sharp, so that when the horse seizes it he may drop it because he objects to its roughness, and when he is bitted with the smooth one instead, may welcome its smoothness and may do on the smooth bit what he has been trained to do with the aid of the rough [τραχύς] one." (Xenophon's *On the Art of Horsemanship*, 10.6)

⁵ These were, in chronological order, Dupaty de Clam, 1771; Gail, 1794; Courier, 1812; Weise, 1828; Curnieu, 1840; and Talbot, 1859.

From this, Charvet concluded that the bit from the Acropolis excavations “must be considered a special training tool... because it is impossible to believe that such an instrument of torture could be endured by a horse for several consecutive hours” (Charvet, 1891: 95). In fact, in the same year that Charvet’s article appeared Jean Théophile Homolle (1848-1925) pointed out, apropos the word used by Xenophon to identify the “teeth” on a bit, “Ἐχῖνος means hedgehog, sea urchin, shell of the sea urchin and by extension a vessel resembling this small shell. But the word also applies to part of ... the bit... embellished with points which stimulate the horse in pricking it” (Homolle, 1891: 160).

Gotteland and Charvet were not the only ones interested in the bronze bit from the Acropolis. The young French art historian Henri Lechat (1862-1925), who was a member of the French School at Athens from 1886 to 1889 and was deeply involved in the study and publication of the new finds (Reinach, 1925: 286), also published an article about it. Based on the fact that he did not refer to Charvet, and Charvet did not refer to him, it seems clear that they worked on the subject independently, although contemporaneously. In 1890, Lechat published a short article dedicated to the Acropolis bit, which he felt “without doubt was part of the offerings amassed in one of the temples of the Acropolis in the archaic period” (Lechat, 1890: 385). He noted, “The bit is broken [jointed]: in the part that weighs on the gums, it is covered in small spikes which must have made the animal’s mouth suffer enormously,” and he described it as “a true instrument of torture” (Lechat, 1890: 387). Like Charvet, however, Lechat was of the opinion that, “This torturing bit could not have been for ordinary use; and in fact I do not know of another example with the characteristics which it presents. But I cannot say exactly how it was used in training horses. I shall content myself with citing some lines of Xenophon which are, to some extent, applicable” (Lechat, 1890: 388). Although apparently unaware of the Gori bit and Charvet’s publications, Lechat concluded his article with the same citation from Xenophon’s *On the Art of Horsemanship* as Charvet had used. A second, related statement of Xenophon’s (*On the Art of Horsemanship* 9.9) should also be considered in this context: “As for bits, the smooth [λεῖος] are more suitable than the rough [τραχύς]; but if a rough one is used, it should be made to resemble a smooth one by leaving the rein slack.”⁶

Two years after Charvet lamented the many mis-translations of Xenophon by writers with a deficient understanding of horsemanship, the Harvard Classical philologist Morris Hicky Morgan (1859-1910) published yet another edition of Xenophon’s *On the Art of Horsemanship*. There, writing about the smooth and studded or spiked bits described by Xenophon, Morgan asked,

“What constituted the smoothness of the one and the roughness of the other?... Evidently... the difference lay in the nature of the “echini,” this word, the plural of “echinus,” I have felt it necessary to transfer from the Greek bodily, for we have none in English which will exactly express its meaning here. The word in Greek, ἔχῖνος, means “sea-urchin;” ... In the rough bit, these spines were sharp... Fortunately, light is thrown on this subject by a bit which has actually come down to us from antiquity. This bit... was found on the Acropolis of Athens in 1888, when the wall and other works of Cimon were in course of excavation. It lay among the debris used as filling at the time of these works. The bit is therefore very old, dating back nearly, if not quite, to the time of the Persian wars, 490–479 B.C.... Each part of the mouthpiece of the Acropolis bit has little spines on it, but these spines are rounded and not sharp.... The horse, we gather from Xenophon, was to be trained on the rough bit... The sharp echini acted on the ‘bars’ of the horse if he attempted to seize the bit. When he had been taught his lesson, the smooth bit was substituted. Here, the echini were rounded, so that they merely suggested punishment without really inflicting it”. (Morgan, 1893: 145-148)

Three years later, Erich Pernice (1864-1945) concurred with Charvet in pointing to the identity of the Gori and Acropolis exemplars. Discussing the Gori bit, he wrote, “The bit is so closely related to the one from the Acropolis down to the smallest details — only the studs are somewhat shorter and at the ends less finely formed — that one is inclined to consider it an Archaic Greek one which, somehow, ended up in the Caucasus” (Pernice, 1896: 34). By this time the Acropolis bit had very definitely earned a place in the literature of Greek archaeology (Daremberg and Saglio, 1896: 1339, Fig. 3292; Ridder, 1896: 185).

4. A bit from Deve Höyük

In 1913, Sir Leonard Woolley published three bits from the plundered cemetery of Deve Höyük in

⁶ The phrase “by leaving the rein slack” (χαλαρότητι) is often translated as “by lightness of hand” but Anderson 1960: 6 argued that the latter interpretation was incorrect.

northern Syria (Woolley, 1916: Pl. 24.3), one of which (Fig. 5) is virtually identical to the Gori and Acropolis examples, while the other two have smooth cannons. Rather than comparing it with either of these, however, Woolley adduced evidence of "Scythian" bits from southern Russia illustrated by Ellis Minns (Minns, 1913: 76, Fig. 19). The bit from Constantinovo published by Minns, however, has smooth cannons. As P.R.S. Mooney later noted, the bit from Deve Höyük with studded cannons is similar to the example "found in the debris of the Persian sack of the Athenian Acropolis in 480 B.C." (Mooney, 1975: Fig. 2.7).

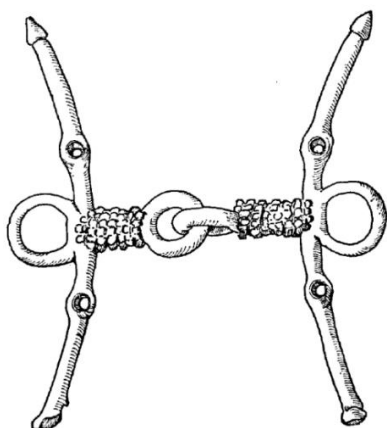


Fig. 5. Bit from Deve Höyük after Mooney 1975: Fig. 2.7.

5. Persepolis and other bits

We come now to the evidence from Persepolis. In his preliminary report on the excavation of the Treasury, Eric Schmidt (1897-1964) referred to and illustrated what he termed "one example of the atrocious bridle bits used by the Achaemenian cavalry". Other specimens differed in some unspecified respects and Schmidt noted only that, "there are variants in the arrangement of the ingenious torture devices on the bit proper" (Schmidt, 1939: 49 and Fig. 30). André Godard (1881-1965), Director of the Archaeological Service of Iran at the time, must have seen the new finds from Persepolis for it was he who first pointed to the similarity of the Acropolis and Persepolis bits (Godard 1938: 242). In fact, at roughly the same time (1938-1940), excavations at Rairh near Jaipur recovered two studded cannon fragments (Puri, n.d.: Pl. 22.13) of precisely the same type, although these were not recognized as such until much later by Lawrence Leshnik who classified them as parts of a "Snaffle of 'Gori' type" (Leshnik, 1971: Ill. 2.1.23).

⁷ Although Calmeyer 1985 treated in passing the bits discussed here, he was more concerned with the attachments for reins and did not comment upon the studded cannons.

Another example of this type, now in the Archaeological Museum at Thessaloniki, was excavated at Olynthus (Fig. 6) and was originally identified as "surely Greek" (Robinson and Mylonas, 1941: 490), Johannes Potratz felt, in view of the geographical distribution of studded snaffle bits, that they were not Greek and that the Acropolis bit had been lost during the conquest of Athens in 480/479 B.C. by the Persians or some of their auxiliaries, i.e. one of the other ethnic groups represented in the Achaemenid army (Potratz, 1941-1944: 20).⁷

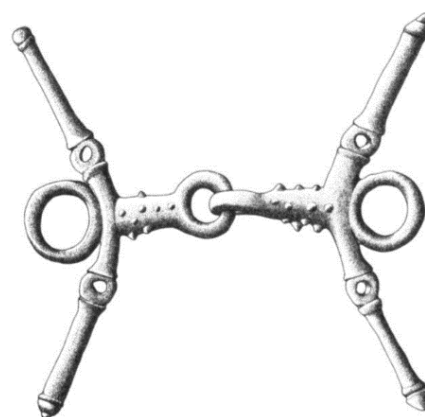


Fig. 6. Bit from Olynthus after Moore 2005: Fig. 7.

In 1948, the Metropolitan Museum of Art acquired, by exchange, from the Iran Bastan Museum, one of the bits (Fig. 7) from the Persepolis Treasury (Wilkinson, 1949: 187; Muscarella, 1980: 33, n. 20; Muscarella, 1988: 324; Rogers Fund, 1948: 48.98.19). The bit measures 25.2 × 23.5 × 3.4 cm. It was not until 1957, however, that the Persepolis bits were finally published by Erich Schmidt. In the second volume of the Persepolis report, Schmidt wrote,

"All fifteen bridle bits... which were found in the Treasury and the quarters of the garrison are made of bronze. The bit proper is always flexible, with two (rarely three) circular links in the center. Nearly all bits are studded with atrocious knobs.... A Persian bridle bit of the same type as our Persepolis specimens, but wrongly identified as "die älteste griechische Trense"⁸ was found in the "Perserschutt" on the Acropolis of Athens. Another very similar specimen, probably contemporaneous with our bridle bits, was found in Gori (Georgia, U.S.S.R.). A

⁸ "The oldest Greek bit".

third specimen of the same type was found in Luristan” (Schmidt, 1957: 100).⁹



Fig. 7. Bit from Persepolis in the Metropolitan Museum of Art. Rogers Fund, 1948.

Although Schmidt made no reference to Xenophon’s observations on bits, John Kinloch Anderson (1924-2015), who was both a Classicist and a horseman, returned to the relevant passage in *The Art of Horsemanship* in 1960 and again in 1961. Reading between the lines, Anderson considered Xenophon’s two bit types to be “one ‘rough’ (τραχύς) for schooling and one smooth (λείος) for ordinary use.... The ‘rough’ bit was fitted with ‘hedgehogs’ (ἐχίνοι), that is, spikes intended to hurt the horse, and the bit might certainly be made smooth by covering these with cloth or leather, though some of its flexibility would be lost in the process” (Anderson, 1960: 6). Later, in discussing the Deve Höyük bit, he added,

“The mouthpiece has two canons — thick, solid cylinders, linked together by interlocking rings. They are covered with rough knobs — less formidable than Xenophon’s “hedgehogs,” but severe enough. Each is cast in one piece with its cheekpiece, which is formed of two sidebars, bent outwards at a sharp angle and pierced with holes for the attachment of the branches of the cheek strap of the bridle.... Several bits of the rough type have been found in Transcaucasia,¹⁰ in graves which may be as early as the ninth to eighth centuries B.C..... at present only two specimens of this type of bit are known from Greece, of which the earlier was found

in the debris left behind by the Persian sack of the Acropolis of Athens in 480 B.C. and may very possibly be Persian. It is almost identical with the bit... from Persepolis.... The second specimen from Greece (which is probably of Greek manufacture) has knobs on all four sidebars. It was found in the ruins of Olynthus, destroyed in 348 B.C. by Philip II of Macedon” (Anderson, 1961: 70).

Up until this time, the scholars who had discussed the bit from Athens had only speculated that it once belonged to a Persian cavalryman. Anderson, in the quote just cited, wrote that it “may very possibly be Persian”. Hans-Volkmar Herrmann, writing in 1968, was tending towards the same conclusion when he referred to the bit from the Acropolis as “belonging probably to a Persian harness, like finds from Persepolis... and from graves of the Persian period in Asia Minor¹¹... Whether it represents booty or the votive offering of an Athenian, who bitted his horse in Persian style, cannot be determined” (Herrmann, 1968: 11, n. 42). Helga Donder was uncertain whether to identify the Acropolis bit as a votive offering or simply a bit that had been lost. She did note, however, that signs of wear on it suggested an extended period of use (Donder, 1980: 61, no. 102).

Oscar White Muscarella, on the other hand, did not hesitate to identify the Acropolis bit as Achaemenid (Muscarella, 1977: 48) and the same position was adopted by Margaret C. Miller who called it “a bronze bit of unmistakably Iranian form” although whether “it was lost by a mounted Persian on the Akropolis, or... was dedicated there as booty by an Athenian” could not be determined (Miller, 1997: 42). Similarly, the bit (Fig. 8) presented by the site-guard of Tureng Tepe to the French team working there in 1980, with studded, ring-like rather than straight cannons, which appears to be a variant of the Gori, Acropolis, Deve Höyük and Persepolis bits, was identified without hesitation by Roland Besenval as an Achaemenid bit (Besenval, 1982: Fig. 1).

6. Rough bits and hedgehogs

The fifteen snaffle bits with studded cannons from Persepolis were discovered more than fifty years after the bit from Gori was first noted in the archaeological literature and the similar bit from the Acropolis had been discussed many times in the literature before a consensus emerged attributing this specific type to the Achaemenids. Over time, many writers commented on the “hedgehogs” or spikes —

⁹ The bit from Luristan cited by Schmidt is not of the same type but has straight side bars and rolled/barrel like cannons which are not studded.

¹⁰ An allusion to the Gori bit, among others.

¹¹ Presumably he was thinking of the Deve Höyük example here.

actually raised studs or knobs — on these bits, and the pain they would have inflicted on the horses that were made to use them. In 1930, for example, Léon Coutil (1856-1943) wrote, “The cannons of the bit from the necropolis of Gori (Caucasus) have a series of 3 or 4 rough edges at the corners of the lips which must have been even more painful for a horse, in order to make it lose the habit of bucking for the most trivial reasons” (Coutil, 1930: 522). The equestrian historian Louis Taylor referred to the “great variety of painful mouthpieces — disks, spikes, chains, etc. One of the classes of these hellish devices was called ‘The Echini’ by Xenophon” (Taylor, 1977: 19). Some modern veterinarians have even asserted that the use of bits with studded cannons “reveals that in ancient times virtually all bridled horses would have been subject to extensive mouth damage and pain” (Booth and McGreevy, 2013: 371) while, on the Metropolitan Museum of Art webpage illustrating the Persepolis bit we read, “The spikes on this bit are especially cruel, and suggest a military function, as they would permit near absolute control on the part of the rider” (<https://www.metmuseum.org/art/collection/search/324042>).

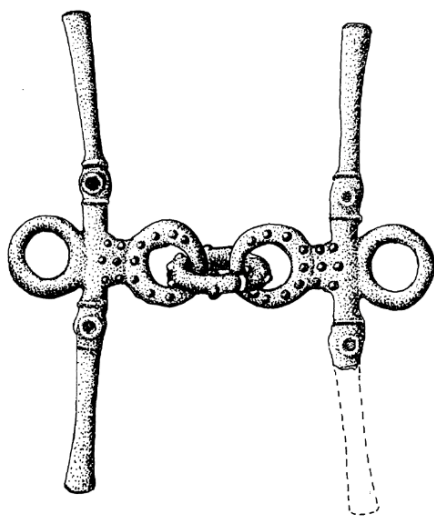


Fig. 8. Bit from somewhere near Tureng Tepe after Besenval 1982: Fig. 1.

¹² This deduction clearly differs from that of Seure 1925: 421 who, in discussing soft and “hard” bits, i.e. bits with rows or spikes, speculated that they were used on “two types of horses treated [bitted] differently because of their use, their breed, or the nationality of their owners. The simplest hypothesis and the more probable is that the softest bits were used by ridden horses, for which the rider had other means of enforcing obedience, and that the harder ones were for harnessed horses which reacted solely to tension on the reins”. He added in footnote 1, however, “One could also hold the opposite opinion, and say that the harder bit

7. Conclusion

How plausible is it that the Achaemenid cavalry, which relied so much on its mounts (see e.g. Gabrielli, 2006; Tuplin, 2010), employed *on a regular basis* bits that were both cruel and inherently liable to injure their own horses? In much of the discussion, especially by non-equestrians, Xenophon’s admonition to always have two bits, one rough and one smooth, appears to have been overlooked. Already at the time of the discovery of the Acropolis bit, however, both Charvet and Lechat underscored the fact that snaffle bits with studded cannons were *training* bits, not bits for extended, everyday use lasting more than a few hours.¹² That the use of studded or spiked bits did occur is shown, not only by the bits reviewed here, but by a statement of Aelian’s (175-235 AD). Contrasting Indian with Western, i.e. Greco-Roman, approaches to equestrian discipline, he wrote, “For it is not the Indian custom to rule them, to bring them to order, and to direct them by means of the rein but by spiked muzzles; thus their tongue goes unpunished and the roof of their mouth untormented” (*On the Characteristics of Animals* 13.9).

Bits of exactly the same form as studded Achaemenid bits, but with smooth cannons and no “hedgehogs”, have sometimes been adduced as parallels to the studded ones (e.g., Besenval, 1982: 178). The absence of studs or spikes on bits of the same form, moreover, suggests that these are examples of the smooth (λεῖος) bits which were to be used alongside rough (τραχύς) ones for schooling. Two such smooth bits, resembling in all respects apart from the cannons those of Persepolis, Gori and Athens, were found at Deve Höyük (Fig. 9), one is known from Constantinovo (Fig. 10) and at least one is known from Nimrud (Potratz, 1941-1944: Abb. 33). There are certainly more.¹³ These two types, formally similar in every respect apart from the presence or absence of “hedgehogs” on the cannons, illustrate the principle advocated by Xenophon of employing two bits, one rough and one smooth. As his service in the force of Greek mercenaries hired by Cyrus the Younger and described in the *Anabasis* vividly illustrates, Xenophon had firsthand familiarity with the Persian cavalry. Whether his

belongs to the rider, who possessed only this instrument for disciplining his horse, whereas the driver of a vehicle was aided by the ensemble of harness and attachments... the two possibilities lead to the same conclusion: the two types of bit correspond to two methods of utilizing the horse”.

¹³ Morgan 1896: Fig. 10 illustrated one in the Shah’s Museum, Teheran (“Musée du Châh, à Téhéran”). See also some of the bits from sites in Georgia, Azerbaijan and Armenia illustrated in Castellucia 2017: Fig. 4.

own views on bits were colored by this experience or not, the recommendations he made in *On the Art of Horsemanship* regarding bits would seem to perfectly conform to the archaeological evidence of studded Achaemenid snaffle bits found at an array of archaeological sites spread far and wide, from Athens to India, and their smooth counterparts.

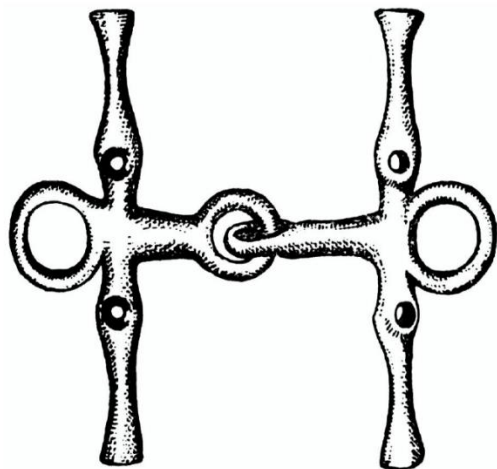


Fig. 9. Bit from Deve Höyük after Potratz 1941-1944: Abb. 40.



Fig. 10. Bit from Constantinovo after Minns 1913: Fig. 19.

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