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BULLETIN  
 OF THE  
ESSEX INSTITUTE.

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VOL. 26. SALEM: JULY—DECEMBER, 1894. Nos. 7-12.

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o ON THE SO-CALLED BOW-PULLER OF  
 ANTIQUITY.

BY EDWARD S. MORSE.

IN many of the European Museums one finds in the Department of Classical Archæology a curious bronze object included with the Etruscan, Roman, and Greek collections. This object usually bears the name of *Bogenspanner*, *Buespander*, *Tira Archi*, *Tira del Arc*, etc., according to the nationality of the Museum.

An examination of this object convinced me that it was not a bow-stretcher, or arrow-pull. A further study persuaded me that it had nothing whatever to do with the archer's bow. Realizing that a step would be taken if it could be demonstrated that it was not an archer's implement I began the accumulation of material in the form of sketches and other memoranda of these objects from the private collections of C. J. Longman, Esq., of London, Prof. Henry W. Haynes, and of the lamented William

Hammer, Esq., of Copenhagen, and from the unrivalled collection of armor and weapons of Louis Richard Zschille, of Grossenhain, which was exhibited at the Columbian Exposition, and from the Louvre, the British Museum and the Museums of Zurich, Brussels, Antwerp and the University of Pennsylvania.

It seemed with the material at my command that some light might be thrown on the uses of this object, but after a greatly interrupted study of it for over seven years I reluctantly yield the solving of the enigma to others, having got no nearer an explanation of it than when I first began, contented, however, with the conviction that the usual attribution assigned to it has been disproved.

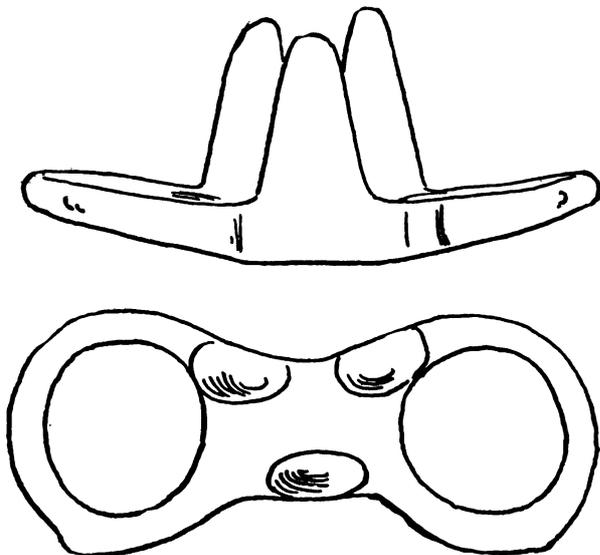
I must here express my indebtedness to Mr. Edward Robinson, Curator of Classical Antiquities of the Boston Museum of Fine Arts, for numerous references to works containing allusions to this object. To Prof. Henry W. Haynes, I am also under obligations for important citations; and to Mr. Ross Turner, for two examples which he purchased in Florence; also to Mr. Dwight Blaney, for a number of sketches of bow-pullers in the Museum of Archæology, at Florence, and in the British Museum.

To the courtesy of Mr. Stuart Culin, Director of the Museum of Archæology, University of Pennsylvania, and to Mrs. Cornelius Stevenson, Curator of the Mediterranean Collections, I am indebted for the privilege of figuring the superb example on Plate I.

As the object under discussion has been almost universally labelled bow-stretcher in museum collections I shall use a similar term bow-puller in referring to it.

The bow-puller is usually of bronze, rarely of iron, roughly cast. (The accompanying figures 1, 2 and 3, in outline, represent the front, top and side views respectively of a plain form of bow-puller; on Plate I are shown in half-tone the front and top views of the plain and the

ornamented form of bow-puller.) It is in the form of two rings springing from a solid centre. The two rings might



FIGS. 1 and 2.

be compared to the frame of a pair of eye-glasses, only in place of the delicate spring connecting the rings, the intervening space is solid metal though less in width than the transverse diameter of the ring (see plan, Fig. 2). This space may be called the body, and from this body spring three spines at right angles to the plane of the rings. It will be observed that the rings are not on a plane but turn slightly upward so that the object rests on the body. This feature is very marked in some specimens though in rare instances the rings are in a plane, and in very rare cases bend slightly

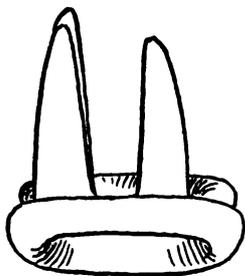


FIG. 3. End View.

downward. The spines are arranged in a triangle, the perpendicular of which is at right angles to the longitudinal axis of the body. It will be seen by the plan that the base of one spine is on one side of the longitudinal axis, while the other two spines are on the opposite side of this axis and parallel to it. It will be observed that when any ornamentation is present (see Plate III), it is always on that side from which the single spine springs; furthermore when an animal's head is part of the ornamentation the head invariably points downward when the object is resting with the spines pointing upward. From these facts it is safe to assume that the object has a front and back, and an above and below. The longitudinal axis should really be the fore and aft axis, but for convenience of description I have indicated the greatest length of the object as the longitudinal one. All embossments, ribs, cross-hatchings, circles, depressions, etc., are on the front side of the object, or on that side from which the single spine springs. On the front sides of the rings, also, inequalities are often found, usually duplicated on both sides. These may be small swellings, strongly marked knobs and in some cases phalli conspicuously modelled. The knobs suggest rudimentary phalli.

There are two leading types of these objects, one in which the rings are slender (see Plate II), the outline when looking down upon it showing only a narrowing between the rings; a section of the outer part of the ring is round, or an oblique oval as in Fig. 1, Plate IV. In this type there is no ornamentation whatever, though the front side of the rings may show slight inequalities as if rudiments had survived of previous embossments. The upward turning of the rings is more marked and the spines are usually shorter than in the other type in which the rings are thick and ponderous (see Plate III), and a section of the outer part of the ring resembles the section of a

cylinder as shown in Fig. 3a, Plate III. The front side is conspicuously ornamented with circles, cross lines, vertical ribs, knobs, and in a few cases with the phallic emblem on each side and pointing away from the centre. At the base of the front spine a steer's head is sometimes seen in high relief, or a lion's head with a lion on both sides, stretching toward it. The outline of the object shows strong indentations and the spines are usually heavier and longer. In both types the spines vary greatly in form; the paired spines may be widely separated at their bases, or united nearly to their apices; the bases of the three spines may be close together, or a space of a centimeter or more may separate the front spine from the back spines; the spines may be long and pointed or they may be very short and blunt; they may be round, square or angular in section or elongate oval (Plate IV, Fig. 8), but in the latter case the flattening is parallel to the longitudinal axis of the object. The three spines may be of equal length, or may vary; in some the front spine is the longest, in others the two back spines are longer. The paired spines may also vary, sometimes the left one, sometimes the right one being the longer. While there is no uniformity in the length, thickness or form of the spines, the larger number of bow-pullers have three spines, though they are found rarely with four spines (Plate IV, Fig. 1), sometimes long and tapering and again in the shape of four short knobs (Plate IV, Figs. 2, 3, 4).

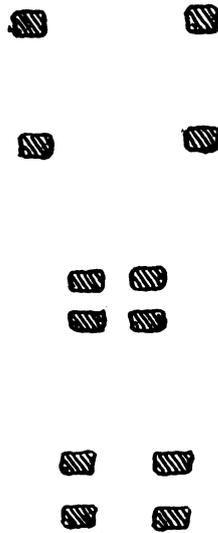


FIG. 4.

In this form the knobs may be widely apart or close together (Fig. 4). Furtwängler figures one from Olympia with five spines (Fig. 5), and in the Zschille collection is one with two spines only (Plate II, Fig. 9), these being the paired ones with no trace of a front spine having existed.

While the decoration is generally duplicated on either side, that is, the bilateral symmetry of the object is carried out in the decoration, I have never seen two bow-pullers alike or in pairs.

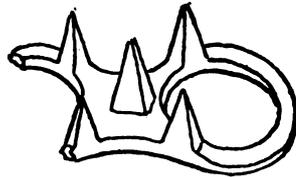


FIG. 5.

The objects in their extreme length, measured from the outer edges of the rings and the inner edges of the openings across the solid body are remarkably constant.

The dimensions are as follows :

Mean of heavy form—length,	71.0 ;	between rings,	19.3
“ “ light “ “	67.8 ;	“ “	20.7

The average deviation from the mean is greater in the light forms and the space between the two rings, or across the body, has a slightly larger average in the light forms.

In the few bow-pullers I have had an opportunity of studying minutely, the signs of wear are such as would be produced by a cord, rope, or leather strap passing through the rings and under the body as in the accompanying figure (Fig. 6,

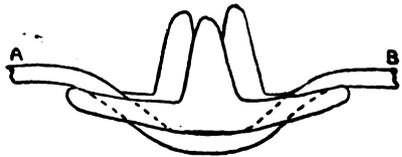


FIG. 6.

A B strap). The signs of wear are very marked in some specimens. The outer surface of the back spines also shows marked evidences of wear in some cases.

The objects are sometimes found broken and the manner of breaking is of importance. The outer portion of one or both rings is broken away (Fig. 7, also Plate IV, Figs. 5, 6, 7), indicating the direction of the strain to have been outward, and probably downward, as if the strap or cord was used in binding the object to some body, and the method of wear would sustain this proposition. The spines also in rare cases are found broken and it is usually the outer spine which is mutilated in this way. The tip of the front spine is in some cases bent inward. In no case have I seen a specimen with the spines bent outward. The object, whether heavy or light, has been designed for strength.

The bow-puller shown in Fig. 5, Plate II, has an opening in one of the rings; this is probably the result of an imperfection in casting and not intentional. The same may also be true of a round protuberance on the front of one of the rings of a bow-puller (Fig.

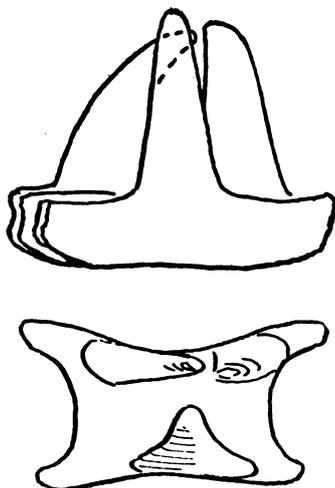


FIG. 7.

6, Plate II). The curious groove seen in the inner edge of the outer part of the ring in Fig. 3, Plate II, is unique so far as I know.

In an object varying so much in weight, number and length of the spines, ornamentation, or absence of it, the features which seem to have an importance in considering their probable use are first and foremost the two rings springing from the solid body and their usual upward

inclination and the uniform length of the object (the average deviation from the mean being very slight), the evidence that the object has a front and back, and an above and below, the spines springing at right angles to the plane of the rings. With these constants, so to speak, might be added the importance of those surfaces showing signs of wear, as well as the bending of the spines and manner of breakage.

The bow-pullers are found associated with Etruscan, Early Roman and Early Greek remains; they belong to pre-classic and early classic times. They have been found in the tombs of warriors. In two examples figured by Strobel, chains with large 8-shaped links are drawn through them (Fig. 10). It was the association of the chain in this way that led Strobel to conceive the object to have been designed for some form of snaffle or curb for horses. Reference to Strobel's memoir will be made further on.

While in nearly every instance this object is labelled in museums bow-stretcher or bow-puller, authorities have not fully accepted this interpretation without question. Gozzadini in his memoir on the ancient Etruscan Cemetery of Marzabotto near Bologna says: "Archæologists have agreed, but I do not know on what foundation, in supposing that certain double rings provided with three points were used by archers by inserting the middle and fore finger in order to stretch the cord. Now this attribution is strengthened by Tommsen, Director of the Museum at Copenhagen, who told Cavedoni that some 'of these implements were found placed together with bronze bows in caves in the northern countries.' They are found in all Egyptian, Etruscan and Roman Museums and they are taken out of Lacustrian stations, and *Torbiere* (Pit graves?) and they find them again in opening the Necropolis of Marzabotto without, however, that phallic sign

which occurs on others. For the same purpose were possibly three other double rings the peculiarity of which is that they have three small points." Gozzadini figures two of these objects which are reproduced on Plate V, Figs. 20, 21.

Friederichs, in his catalogue of bronzes in the Berlin Museum, protests against the usual interpretation of the use of this object without, however, offering any suggestion as to its possible character. He says, "As a foundation for the common acceptation that the implements here catalogued should have served the purpose of pulling the bow I have been able to find only one observation, namely of Tommsen who has rendered good service in the sphere of northern Archæology. According to his statement these objects have been found together with bows in the caves of northern nations. However, this circumstance is not sufficient to confirm the supposed purpose, all the more as it is absolutely impossible to understand how this implement is to be used; particularly those having five points (for they have been found with three, four and five points) are entirely inexplicable from this point of view. In Naples the implements are exhibited among articles pertaining to harness, but I cannot specify how and where they should have been applied. They have also been explained as weapons for hurling against cavalry, for which purpose, however, the points are partly too broad, partly too thick and stout. Finally I will give the opinion of a technical friend whose explanation is that they are a kind of screw-driver." Friederichs further adds that these implements are of classic as well as of barbaric origin.

As a practical archer my attention was immediately arrested by this object—the first one I ever saw—in the Antiquarian Museum at Zurich. The curator kindly allowed me to examine it, and I was soon convinced that it had

nothing to do with a bow so far as drawing the arrow was concerned. It was important, however, to settle definitely this question. Derived from early classic times it seemed reasonable to believe that, if it were associated with archery in any way, a representation of it would certainly be found on figures of soldiers or hunters in antique bronzes and marbles. A categorical statement of the objects represented in the hands of these ancient figures would show among other implements, utensils, weapons, etc., such as the cestus, discus, strigil, shield, spear, sword, cymbal, pipes and even the bow; and such ornaments as arm-bracelets, clasps, etc., all details of the sandal, and manner of fastening; and yet an examination of hundreds of these figures fails to show any object remotely resembling the bow-puller. An extended examination of the decoration on ancient vases did not reveal any object of this nature. The figures are depicted as holding in their hands various weapons, flowers, tablets, branch of a tree, flask, staff, club, jumping weight, double flute, oil-jug, fillet, helmet and an infinite variety of other objects, yet no evidence of this implement is found either in the hand or upon the person. Wall paintings in Etruscan tombs while showing a variety of weapons do not depict the bow-puller. Surely if this object was associated with man as an implement or was utilized in any way by a soldier, a hunter, or an archer, we ought in some single case to find a trace of it. What more natural than to show the insignia of an archer on the hand, or secured to his person? Yet figures of archers, and fragments of hands in the attitude of drawing the bow have been repeatedly found and no such appliance as the bow-puller is depicted. Its entire absence in these ancient representations is certainly overwhelming proof, if no other evidence were needed, to show that this object has been wrongly named.

I have already shown in my paper on Ancient and Modern Methods of Arrow Release<sup>1</sup> that, as far back as classic times, the European drew the bow with the tips of his two or three fingers. From the fact that the Mediterranean nations have used this release I have termed it the Mediterranean release. A remarkable example of this release has come to light since the publication of that paper in the discovery of the so-called Alexander Sarcophagus, at Sidon, in Phœnicia. Mr. Edward Robinson informs me that this most beautiful specimen of Greek sepulchral art yet brought to light is now in the Museum at Constantinople, to which place it was carried by Hamdy Bey, the Director of Antiquities of the Ottoman Empire. This scholar, in conjunction with M. Theodore Reinach, has published it, and other sarcophagi found at the same time and place, in a sumptuous work entitled *Une Necropole royale à Sidon*. The date of this sarcophagus is probably the latter part of the fourth century B. C. On one side is represented a hunt, in which Greeks and Persians take part, and on the other a battle between the Greeks and Persians. At the time of its discovery the magnificence of its decorations gave rise to the supposition that it was the sarcophagus of Alexander the Great, whence it derived its name; but while this theory is no longer maintained it is still possible that the principal figure in each scene may be a portrait of him, somewhat idealized, as many of his portraits were.

In the battle scene is shown the most perfect Mediterranean release of classic times. A photograph of this sarcophagus was sent to Mr. Robinson shortly after its discovery and from this he has recently had made a sun print enlarged to natural size which may be seen in the gallery of sculpture, Boston Museum of Fine Arts.

The bow-puller certainly had nothing to do with this

<sup>1</sup> Bulletin of the Essex Institute, Vol. XVII, Oct.—Dec., 1885.

method of release. The savage releases which I have termed primary and secondary are out of the question. The only other release which could have occurred in the regions where the bow-pullers are found is the release which I have termed the Mongolian, and this method would have been used by some Mongoloid race such as the Turks, or the modern Persians, who, though not Mongolian, early acquired the Mongolian release, and here the thumb-ring would have appeared. Had the so-called bow-puller been used in the way conjectured we should expect a certain uniformity in that part presumably engaged in pulling the cord of the bow, but we have seen that the spines vary in number from two to five, and in length from two millimeters to sixty. The variation in the space between the spines is equally great, in one case wide enough to admit a rope as big as one's finger, and in another example so constricted that a thread would hardly be admitted. If now we examine the thumb-ring used in the Mongolian release we find the greatest uniformity in its shape, even among widely separated peoples, and even in ancient times, as shown by a bronze thumb-ring dug up near Palmyra, by the distinguished classical archæologist Dr. Felix von Luschan.

I have not been able to find any early references in regard to the bow-puller and do not know on what grounds, or at what time, the name *bogenspanner* was first applied, but one may easily conjecture the origin of its name. In a vague sort of way it was known that the Asiatic archer used a thumb-ring in drawing the bow; little attention, however, seems to have been given to the exact method in which it was used. As an illustration of this vagueness in regard to archery one may find in the art galleries of Europe many pictures, particularly by Italian artists, of the martyrdom of Saint Sebastian. In nearly every case

the archers are armed with the Turkish bow ! Cross-bows are often depicted in illustrating the same subject, a weapon that was not known for hundreds of years after the event. As another illustration I may cite the famous Germanic Museum of National Antiquities at Nuremburg. In its collections is a Turkish thumb-ring, a Turkish bow, and other accessories of a Turkish archer's outfit. A detailed drawing, natural size, is exhibited to illustrate the manner in which the thumb-ring is used, and the drawing shows the ring on the wrong hand and upside down ! Even the curious grooved device which is held in the bow hand to permit the archer to draw the arrow some inches within the bow is directed outward as if to guide the arrow. In a similar way the idea having obtained that the ancient Greeks pulled the arrow in the Asiatic fashion (see Hansard—*The Book of Archery*), Thorwaldsen in restoring the hands of the figures on the pediments of the temple of Ægina endeavored to represent what he supposed to be the Asiatic method of drawing the bow. As a result he has wrought the fingers in a way utterly impossible for an archer to assume in releasing the arrow, and of course leaving out the thumb-ring or any other appliance of that nature. From this confusion of ideas in regard to the matter it is quite probable that, when the curious bronze implement under discussion was first studied, the two fingers so naturally adjusted themselves in the rings that it was supposed to be an archer's device for drawing the bow, and this error has been transmitted by subsequent writers on the subject.

Caylus in 1757 figures this object in his *Recueil d'Antiquités*. He expresses no opinion in regard to its use, and further adds that no use has been assigned to it. He figures the object upside down as if standing on three legs, the three spines in this instance, being of the same length.

Friederichs has stated that some have conceived it to be a caltrop, and rightly says it could not be of service in this way on account of the bluntness of the spines.

A comparison with the ancient Tribulus (Fig. 8) shows an entirely different device. The Tribulus was a ball of metal from which sprang four sharp spikes so that in whatever manner it was flung upon the ground one spike always pointed upward. In this connection it may be remarked that Furtwängler in his *Olympia*, figures a single flat ring from which spring three sharp spines (Fig 9), and he queries whether this was allied to the bow-puller.

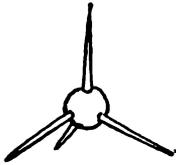


FIG. 8.

It is barely possible, though hardly probable, that this might have been a form of caltrop. We can hardly imagine what Friederichs' technical friend had in mind when he suggested that the bow-puller was a kind of screw-driver, for it seems impossible that any implement for drawing or pulling out any fixed object could remotely resemble the bow-puller.

Pellegrino Strobel under the title *Anelli gemini Problematica* (Bulletin di Paletnologia Italiana xvi, 1888), presents the results of his study of a number of specimens preserved in the Museum at Parma.

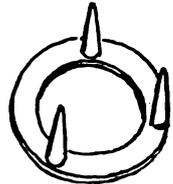


FIG. 9.

His material consisted of fourteen bronze ones and two of iron. The larger number of these were three pointed but as the double spines were in some cases united nearly to their tips he regarded them as bicuspid. These, as I have already shown, should be regarded as tricuspid, and in a later paper Strobel so regards them. Of the fifteen specimens described, twelve had three spines, and three had four spines. In two of the implements the front spine was bent inward and was also slightly longer than the paired ones.

In this memoir Strobel advances the idea that the object was designed for a snaffle or nose-band to be used as a curb for horses. He says that in the Iron Age some progress must have been made in the training of horses and in this training a curb or snaffle must have been evolved, and he therefore expresses the belief that this enigmatic object was used for that purpose. He believes that it was held against, or upon the nose of a horse in such a way that the spines could be forcibly pressed against the flesh, the two spines being below, while the longer single spine was above, and hence this side of the object was ornamented. (I have already shown that there is no constancy in the relative length of the spines in the tricuspid ones. In forty-two specimens, for example, the single spine is longer in fourteen, shorter in thirteen, and of the same length as the others in fifteen. In some of them the single spine is only half the length of the other two.) He explains the phallic emblem which is found on some of them to indicate the soundness and virility of the horse in training. In a second paper in the same bulletin (xv, 1889), he had examined sixty specimens of which five were of iron, the rest of bronze. Of these sixty specimens the origin of thirty were known, and in some of these the method of burial and associated objects were also known. In this paper Strobel states that there are three theories in regard to the probable use of this puzzle: First, to assist in drawing the bow; second, for stretching the cord of the cross-bow (which was not used for a thousand years after!); third, to aid in restraining horses not only as a snaffle, but as a curb.

Dr. Charvet, in the Bulletin of the Anthropological Society of Lyons (1889, p. 70), has a communication on this subject which he calls *Gourmet de Répression*. In this paper he adopts the views of Strobel in regarding it as a

snaffle, though he thinks the instrument was worn under the nose instead of above, and he says this opinion is based on a daily experience in training horses by ordinary *caveçon* (curb), which ought not to operate except at the will of the trainer. In Strobel's conception of its use it would always be pressed against the horse's nose whereas

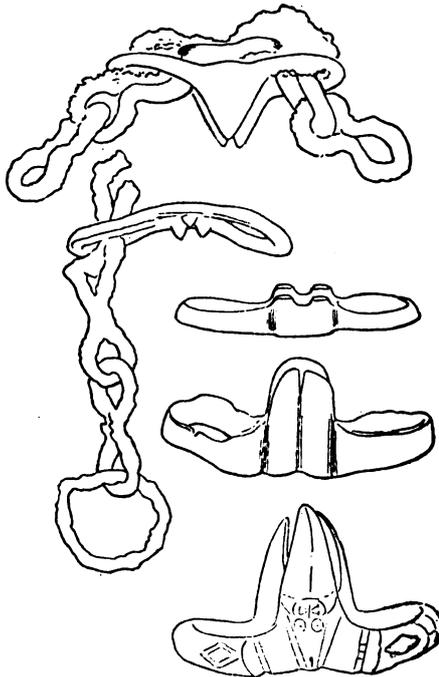


FIG. 10. Reproduced from Strobel's Memoir.

it should be under the chin or throat; the trainer then pulls it with greater or less force at will. Strobel figures two of these instruments with a large eight link chain passing through the rings (see Fig. 10), and Charvet says this chain was simply to hold the implement in place. Charvet further expresses the belief that from this object the curb originated when bits were rigid and not jointed in the

middle. Strobel in reply cites the quadridentate type as being curved to adapt itself to the curve of the horse's nose when pressed down. The rings were big enough to allow the chain to pass through and yet leave room for a rope to be tied to each ring. In his second paper Strobel figures a snaffle of two centuries ago and one used at the

present time. I fail to see any relation between these two forms and the enigma under discussion. Charvet urges that the implement worn in the way suggested by Strobel would wound and ruin the horse. Strobel says that in any case the chain did not press down the implement; the rein or cord which he believes was attached to it was pulled at the will of the trainer. He believes that his first idea of the use of this object is correct, though it might have been used under the nose as suggested by Charvet. Strobel says that no object preceding the bit has been found in pre-historic times. He contends that there must have been an evolution of the bit, and if this object is not a stage in that development then nothing has been discovered to fill the gap. He finally expresses the opinion that all the twin rings were similar in function and that was the controlling of horses. I have quoted the views of these authors at some length as the object certainly suggests an association with harness and possibly with that of a curb or snaffle.

(In Fig. 10 some of Strobel's figures are reproduced half-size.) Opposed to this idea may be properly urged the great variation in the length of the spines. In some we find long, sharp points, in others short, square knobs. Nothing would be effected by forcing such short blunt knobs against a horse's nose either above or below, and as to the long-spined ones it would be impossible to hold the object in place; the object would be tipped or pulled over on its side however it were worn. As to its forming a stage in the evolution of the bit we find the linked bit in Etruscan tombs associated with this object. If this were a curb or snaffle of any kind it would certainly appear on some one of the many ancient bronzes, marbles or vase paintings of horses. Now an extended examination of these various representations has failed to reveal any

object remotely resembling this implement. If it had been used as a curb in the way suggested it would have been, of all objects, the most conspicuous in those examples in which men are represented as leading or holding a rearing horse, and there are many representations of this character. Had it been worn inside the mouth as a bit the elaborate ornamentation seen on some of them would have been useless. The ponderous weight of some compared to the light weight of others would also be against this supposition. For these reasons we cannot accept this interpretation of its use.

Knowing the ingenuity of Mr. Frank Hamilton Cushing, the distinguished ethnologist, in puzzling out enigmas of this nature, I placed in his hands one of these objects for study; he also had access to a very beautiful long-spined specimen in the collections of the Museum of Archæology of the University of Pennsylvania, a figure of which I am permitted to publish through the courtesy of the officers of the museum. In an exceedingly instructive paper on the origin of the bow published in the proceedings of the Anthropological Society of Washington (the same being Mr. Cushing's address as presiding officer of the Anthropological Section of the American Association for the Advancement of Science), Mr. Cushing has advanced a most ingenious idea of the use of the bow-puller by conceiving that it was originally developed from a spear-thrower. Indeed he goes so far as to assert his belief that it was really used functionally for that purpose, and, to support this contention, he gives a graphic figure of an ancient Roman soldier in the attitude of throwing a spear with the aid of this implement. Were all the bow-pullers similar to the two he had in his possession one might be inclined to regard his surmise as having the same degree of probability as the various guesses that have already

been offered. The ancient spear-thrower of the Romans has long been known from numerous figures of it in classical drawings. It was simply a leathern strap—amentum—secured to the middle of the spear or javelin to assist in giving force to the act of throwing. The amentum is so often figured on ancient vases that the method of spear-throwing is beyond question. The bow-puller shows by its signs of wear no such use as would be indicated by Mr. Cushing's supposition. The single spine, against which the end of the spear is supposed to rest, is, when bent at all, always bent inward and not outward; furthermore the two spines, between which the end of the spear is supposed to pass, are usually too close together to permit the passage of even a narrow spear-butt. In many cases, as we have seen, the two spines are united nearly to their tips (Plate V, Fig. 12); in one instance only the double spines are present (Plate II, Fig. 9); in a considerable number there are four spines in pairs. This attribution of its use, therefore, may be dismissed with the other conjectures.

Other suggestions occur to me as to its probable use, though I confess they have no greater degree of probability than that of the screw-driver conception. The Japanese, and probably the Chinese, are accustomed to use a device of metal for holding down the long pith wicks in the saucer-shaped lamp. This object is in the form of a ring with a single spine rising from one side, or the ring may have a transverse bar from which springs the metal spine. Figures of these two forms are here given (Fig. 11). After this idea occurred to me I became acquainted with Friederichs' catalogue of bronzes in the Berlin Museum already referred to. In cataloguing the specimens of *Bogenspanner* he describes one upon which is a steer's head, flanked by two phalli, and adds parenthetically "a connection that has already been found in the lamps." The

phallus, as we know, was to guard the object against evil influences, and one may find representations of this symbol not only on lamps, and other objects, but even painted on

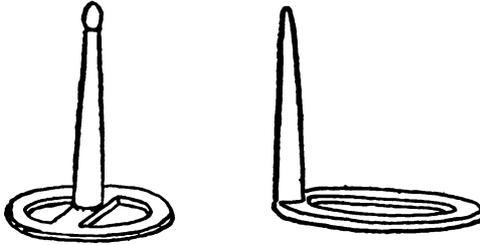


FIG. 11.

the kitchen range as at Pompeii. This remote surmise, however, is not at all weakened by a curious object in

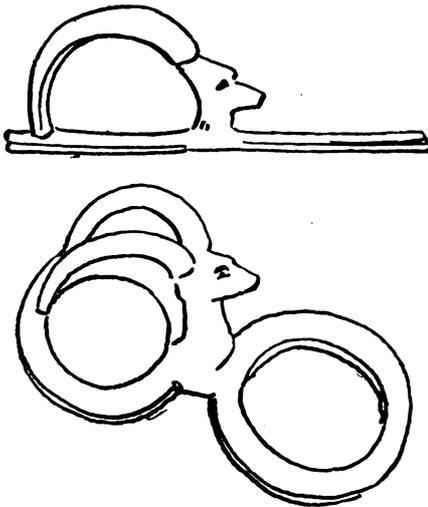


FIG. 12.

the British Museum, for a sketch of which I am indebted to Mr. Dwight Blaney, and which is here produced (Fig. 12). In this a steer's head rises from the body between the two rings, while the two horns curve back and unite with the outer rim of one of the rings. It does not seem possible that this object has any relation to the bow-

puller unless it be a lamp wick-holder. If it is related, then all other attributions of its use are vitiated by this unique

form. If any grounds exist for believing it to be a lamp utensil then the spines might be supposed to assist in holding the wicking material whatever it might be. The upward bending of the rings might be supposed to fit the curving surface of the oil saucer. Roman saucer-lamps are common and would seem to necessitate some device for keeping the wick submerged. The great variety in the objects which are supposed to be bow-pullers, or related to them, suggests the idea that they were not all used for the same purpose. Whatever the first one was designed for it is possible that objects for entirely different purposes were made in imitation of the first form. Thus in our times a paper-weight may be seen in the form of four cannon balls, an inkstand in the form of a mortar, a bronze pen-rest in the shape of a cavalry saddle, or a horseshoe turned up on end (a remarkable Greek vase in the British Museum is beautifully modelled in the form of a horse's hoof) and so on. Thus it may be that some of these objects may have been used as a weight to hold down the lamp wick.<sup>1</sup>

It is possible that the long-spined ones were strapped or bound to a horse or man to keep a load from shifting or swinging. This use is suggested on account of their manner of wear and breakage.

A friend of mine has suggested that the object might have been bound to the hand to enable a chariot driver to hold the reins more firmly in driving; a curb, in fact, but held in the hand and not attached to the horse's head. This idea is strengthened by the uniform length of the object, and the upward inclination of the rings corresponding respectively with the width of the palm and its hollowing shape. Nearly all the bow-pullers fit naturally into the palm of the hand; the occasional bending of the spines and

<sup>1</sup> I have already called attention to the evidence of, at least, two distinct types of bow-pullers, not including such forms as those shown in Figs. 10 and 12. With sufficient material these types may be found to run into each other; but with the objects thus far examined the differences seem to hold good.

the points being sometimes broken, the signs of wear on the sides of the spines, and the manner of breaking of the rings just where a strain would come when great force was used, all support the idea. So impressed was Lieut. W — of the United States Navy of the correctness of this supposition that he bound a bow-puller to his hand by means of a handkerchief, and then held a leathern strap so firmly that three men dragged him about the room but could not loosen his hold upon the strap. If this suggestion has any value then one can easily understand why the object has not been revealed in ancient sculpture or painting. The object being grasped in the closed hand would be concealed from view.

It has been suggested that possibly the spines were made to be driven into some object. This could hardly be so, as the openings in the rings were evidently to be left free for the passage of a cord or strap. In this connection, however, it may be remarked that the bronze figurines illustrated in Gozzadini's memoir have spines springing from the feet below, for the purpose of attaching the object to some base of support, and these spines strongly resemble the spines of many of the bow-pullers, in being broad at the base, pointed at the end and strong and clumsy in appearance.

The possibility of the spines being inserted in any object is further negated by the ornamentation extending along the front spine as in Fig. 3, Plate I, which would not have been added if the spine were intended to penetrate anything. The head shown in high relief on the spines of Fig. 2, Plate III, and Fig. 14, Plate V, would prevent their insertion for the purpose of fixing the object.

In Japan a curious device is used to hold a pot at varying heights above the kitchen fire. These devices are shown in my work on Japanese Homes and their Surroundings (Figs. 173, 175). The device shown in Fig. 173 is

often depicted in old Dutch paintings and is doubtless in use in Holland to-day. In Gozzadini's final memoir on the ancient Etruscan cemetery at Marzabotto, 1870, are figured two bronze pots to which are attached chains (links 8-shaped) terminating in a large circular ring and identical with one of the chains figured by Strobel as passing through a bow-puller, a reproduction of which is given in this paper in Fig. 10.

If the various forms regarded as bow-pullers are for different purposes, and there can be no question that some of them are entirely unrelated, then we may conceive that some of them might have been used for holding the reins. The bow-pullers if representing a single purpose (as Strobel is inclined to believe they do), invalidate by the varying length, character and number of spines, every attribution assigned to them.

As an evidence of the uncertainty in regard to the uses of the bow-puller one may turn to the comprehensive Dictionary of Greek and Roman Antiquities, by Daremberg and Saglio, in course of publication, and he will there find on page 473, under matters pertaining to the bow, a very poor figure of a bow-puller with a brief note of its supposed use, signed by Saglio. Later on under horses' bits, curbs, etc., under the sub-title *Siguette*, page 1336, the figures of Strobel are reproduced and his interpretation of the bow-puller as being a snaffle is indorsed. The article is signed G. Lafaye.

#### SUMMARY.

1. As a Bow-Puller. It is simply impossible to draw a bow with it, and if a bow-puller it would appear in ancient sculpture and painting.
2. As a Cross-Bow Implement. The cross-bow was unknown to the ancients.

3. As a Caltrop or Tribulus. The spines are too short and blunt in many of them and the long-spined ones would not remain in position ; they would show no signs of wear ; furthermore the Tribulus is known and has no resemblance to this object.

4. As a Screw-Driver. The idea is unthinkable.

5. As a Spear-Thrower. The varying character of the spines and signs of wear are against the idea ; furthermore the amentum used by the ancients for spear-throwing is well known as a leathern strap attached to the middle of the spear.

6. As a Snaffle or Curb. Again the variation in the length of the spines, and the fact that in no case has any device of this nature been represented on a horse's head in ancient sculpture, are sufficient to disprove the idea.

7. As a Bit inside the mouth. The jointed bit was co-existent with it, and the ponderous character of some of the bow-pullers, and the lightness of others, would militate against this conception of its use.

8. As a Lamp Wick Holder. The signs of great wear and its manner of breakage renders this supposition valueless.

9. As an object to prevent a load from slipping. The small tubercles which take the place of long spines in some of them would render it useless for that purpose.

10. As a Curb to hold in the hand for grasping reins or anything else. The great length of the spines in some specimens would preclude its use in that way.

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#### EXPLANATION OF PLATES.

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##### PLATE I.

Natural size.

Figs. 1, 2. Bow-puller. Plain type, front and top view. Collection, author.

ON THE SO-CALLED BOW-PULLER OF ANTIQUITY. 165

**Figs. 3, 4. Bow-puller. Ornamented type, front and top views.**  
Collection, Museum of Archæology, University of Pennsylvania.

PLATE II.

Plain type. Natural size.

- Fig. 1.** Collection, Prof. Henry W. Haynes, Boston.  
 " 2. " C. W. Longman, Esq., London. From Perugia.  
 " 3. " " " " "  
 " 4. " E. S. M.  
 " 5. " Antiquarian Museum, Zurich.  
 " 6. " Louis Richard Zschille.  
 " 7. " " " " (cast iron).  
 " 8. " The late William Hammer, Copenhagen.  
 " 9. " Louis Richard Zschille (no trace of front spine).

PLATE III.

Ornamented type. Natural size.

- Fig. 1.** Collection, C. W. Longman, Esq., London.  
 " 2. " Louis Richard Zschille.  
 " 3. " Museum of Archæology, University of Pennsylvania. *a*, Section of ring. Rough sketch of the one shown on Plate I, Figs. 3, 4.  
 " 4. " British Museum.  
 " 5. " Louis Richard Zschille.  
 " 6. " " " "  
 " 7. " " " "

PLATE IV.

Figures natural size.

- Fig. 1.** Collection, Louis Richard Zschille.  
 " 2. " " " " This section shows the form adapted for rope or strap to pass through rings and under body in the manner already described.  
 " 3. " British Museum.  
 " 4. " Louis Richard Zschille.  
 " 5. " William Hammer.  
 " 6. " Prof. Henry W. Haynes.  
 " 7. " " " " "  
 The last three figures are given to show manner of breakage.

- Fig. 8. Sections at base of spines of some of the bow-pullers already figured.

## PLATE V.

The Figures are reproduced half size from rough sketches made through museum cases, etc. The exact dimensions are not known.

- Figs. 1, 2, 3, 4, 5. Collection, Museum Porte de Hal. Brussels.  
 Fig. 6. " Museum of Archæology, Florence  
 (Etruscan).  
 Sketch by Mr. Dwight Blaney.  
 " 7. Collection, British Museum.  
 Sketch by Mr. Dwight Blaney.  
 Figs. 8, 9, 10, 11, 12, 13. Collection, Museum of Archæology, Florence.  
 Sketch by Mr. Dwight Blaney.  
 Fig. 14. From Strobel's Memoir referred to in text.  
 Figs. 15, 16, 17. From Photographs Etruscan Collection,  
 Museum of Archæology, Florence.  
 " 18, 19. The Louvre. Hasty sketches by E. S. M.  
 " 20, 21. From Gozzadini's Memoir referred to in  
 text.

FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



MORSE ON SO-CALLED BOW-PULLERS OF ANTIQUITY.

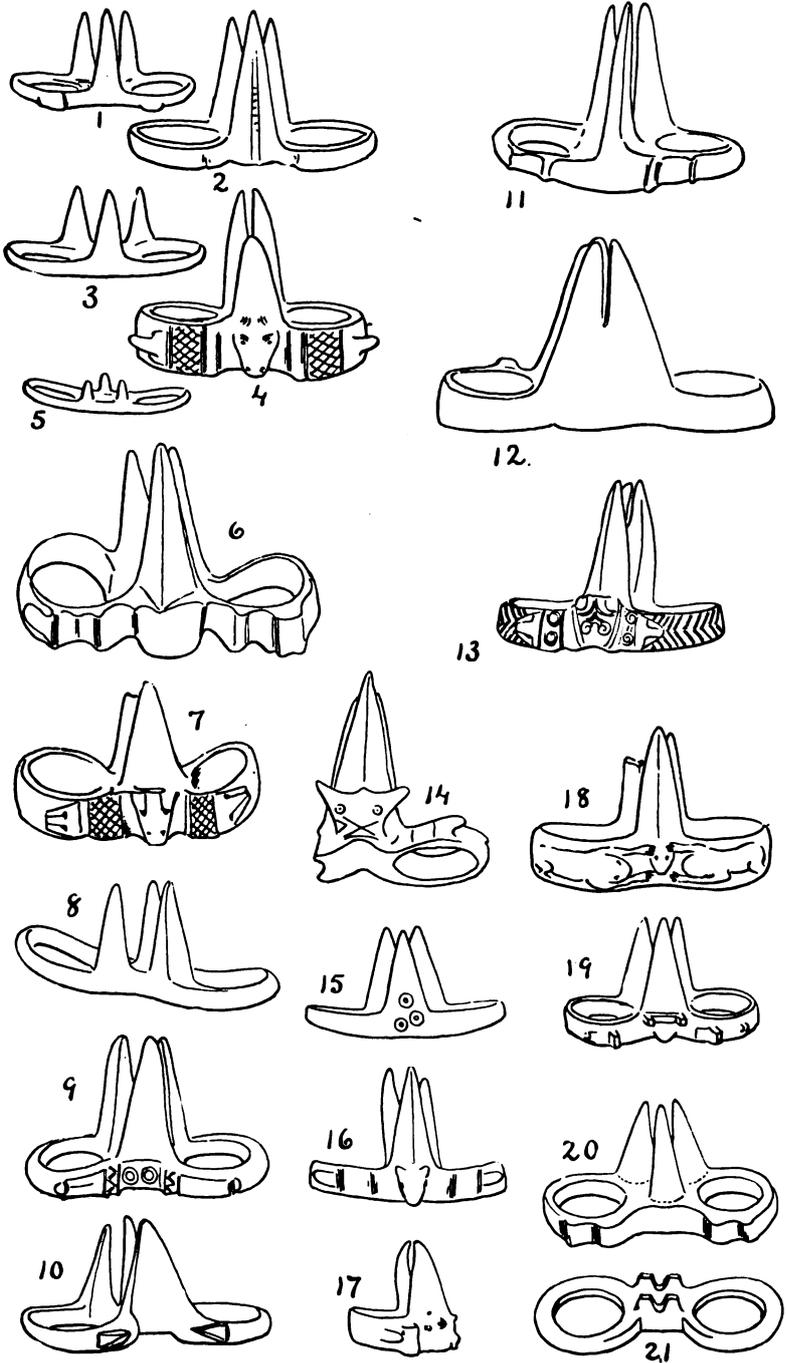












MORSE ON SO-CALLED BOW-PULLERS OF ANTIQUITY.