

Astragalomancy in Etruria: An Analysis of the *Astragali* at Cetamura del Chianti

Patrick Lebo
Classics

The University of North Carolina Asheville
One University Heights
Asheville, North Carolina 28804 USA
Faculty Advisor: Dr. Lora Holland

Abstract

158 unpublished *astragali* (animal knucklebones) excavated from 2011-2014 in a deep well on the Romano-Etruscan site of Cetamura del Chianti (Tuscany, Italy) are the focus of this research project. Knucklebones were and still are widely used in many world cultures for games of chance and to determine divine will. The research question was to determine whether these sheep/goat, cow, pig, and deer bones were used for Roman or Etruscan divination or games of chance, or were simply thrown into the well as debris between the 3rd century BCE and the mid-first century CE. The methodology included a detailed analysis of each knucklebone, cataloging, weighing, measuring, and photographing each, and noting any anomalous features. After a brief synthesis of research on *astragali* at archaeological sites in Greece and Asia Minor, especially the Artemision in Ephesus and the Corycian Cave near Delphi, the paper's focus turns to astragalomancy (divination by throwing knucklebones) and cleromancy (divination through lots) more broadly as they relate to both Etruscan and Greco-Roman ritual, in order to further understand their significance at Cetamura. Next, the archaeological context of the bones is highly suggestive of ritual activity, since a forthcoming report on the bones made by an Italian scientist for the Cetamura dig shows that most of the bones are not in matching pairs, so are not likely to be food debris. The author concludes that signs of human use on the bones combined with the spread of deposition constrained mostly to the Etruscan use level of the well, the evidence for other ritual activity at the well, and what is known about the Etruscans' affinity and respect for divination strongly suggest that these bones did have a ritual or religious function and that they were deposited with regularity during the Etruscan occupation of the site.

Keywords: Astragalomancy, Italy, Games

1. Introduction

On a hilltop in Northern Tuscany, Italy archaeologists have located an Etrusco-Roman site that contains ruins dating from the Hellenistic era (c. 300-150 BCE) through the Roman Empire. At this archaeological site named Cetamura del Chianti, a sizable cache of *astragali* was discovered that may have special significance for the study of Etruscan religious activity. A deep well at this site in northern Tuscany has preserved centuries worth of undisturbed artifacts, including 158 sheep, goat, and pig *astragali*, which are ankle bones found in most bipeds and quadrupeds and colloquially known as knucklebones. In addition, archaeologists have found knucklebones from deer and cows at this site, however, this project only focused on the sheep, goat, and pig specimens found in the transitional and Etruscan loci of the well. Dr. Ornella Fonzo, of the laboratory at the Municipal Archaeological Museum of Villanovaforru in Italy, concluded that the majority of the Etruscan *astragali* came from different animals and were deposited in the well without the rest of their respective skeletons. This contrasts with the *astragali* found in the Roman loci of the well, which were fewer in number, found in more matching pairs, and often with partial skeletons. It is not uncommon to find *astragali* ritually deposited separate from their skeletons. In fact repositories of knucklebones have been

discovered among many Mediterranean cultures, but these sort of deposits are most common at Greek sites. This find at Cetamura stands out because it marks a large cache of *astragali* found at an Etruscan site, and no comprehensive study of *astragali* in Etruria has yet been published. Though the Roman statesman, Cicero, wrote a treatise concerning the use of *astragali* in Italy which points to the practice of divination as well as games of chance, there is no written record of Etruscan religious activity that involves *astragali*. Cetamura contains evidence of both an Etruscan sanctuary and religious space as well as a Roman bath complex, and it exhibits the confluence of Roman and Etruscan cultures. It is therefore an important place to study *astragali* and may provide further insight into the ritual activity of the Etruscans and the use of knucklebones for divination within the ancient Mediterranean. Furthermore, current research on the Etruscans suggests that they had a great respect for divination and may have influenced some of the Roman religious practices, such as augury. Based on prior research of *astragali* in Roman literary sources and Greek archaeological sites, the archaeological context of the knucklebones found in the deep well is highly suggestive of ritual activity, and since divination was held in high regard by the Etruscans, cleromancy may be considered as a possible explanation for the abundance of *astragali* at Cetamura.

2. Research Question:

The discovery of so many knucklebones in the well at the Etrusco-Roman site of Cetamura del Chianti raised several questions regarding the Etruscan use and deposition of *astragali*. Caches of this sort have been found elsewhere in the Mediterranean, but the lack of Etruscan *comparanda* makes the task of answering these questions particularly challenging as well as pertinent. In order to provide an explanation with reasonable confidence it was deemed necessary to examine several Greek and Italian sites with their relevant research, the archaeological context of Cetamura, Etruscan religious practices, and the bones themselves. The conclusions regarding the use and significance of *astragali* vary depending upon the context in which they were found and the types of modification since they have been documented as childhood toys, votive objects, and tools for divination.

3. Summary of Explanations for Ancient Use of *Astragali*:

The combination of ancient sources, archaeological research, and modern anthropological comparative analysis provides a wealth of evidence for children's use of *astragali* in the ancient Mediterranean. Iconographic and artistic depictions from the Hellenistic period show children and young women utilizing *astragali* for what appears to be recreation.

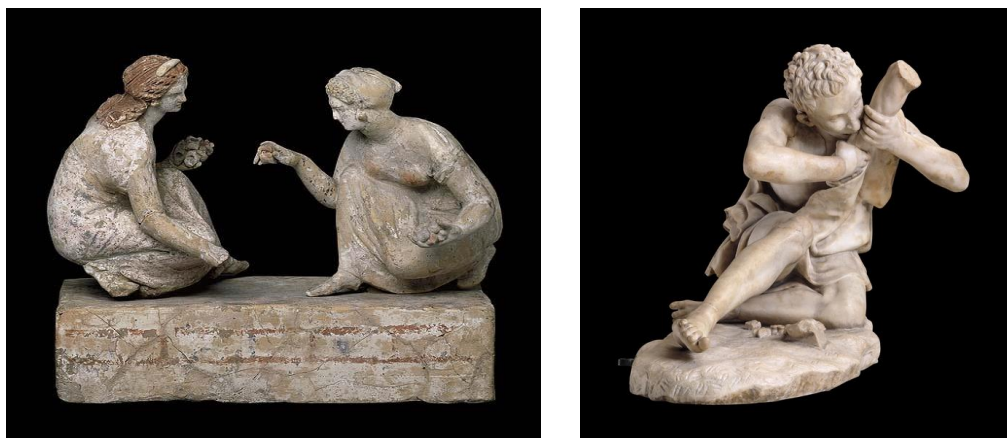


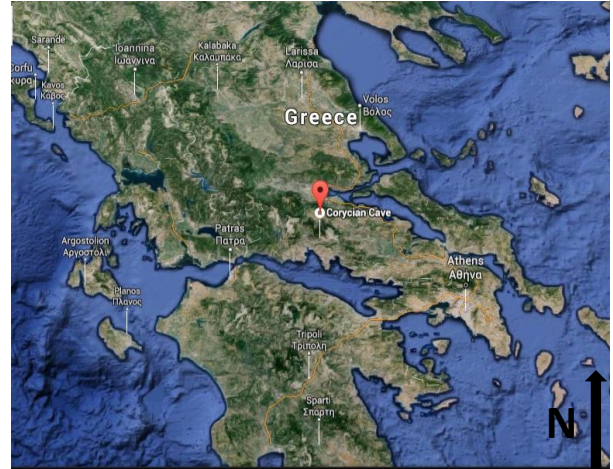
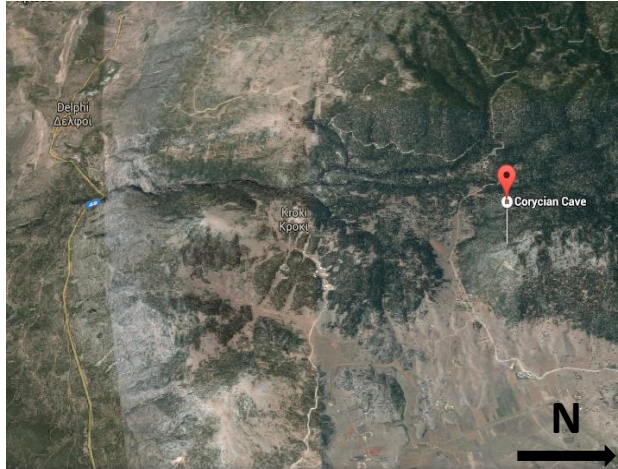
Figure 1 (left): Terracotta group of knucklebone players <http://culturalinstitute.britishmuseum.org/asset-viewer/terracotta-group-of-knucklebone-astragalos-players/ZQGRhQVeQQzGVw?hl=en>. Figure 2 (right): Marble sculpture of two boys fighting over a game of knucklebones <http://culturalinstitute.britishmuseum.org/asset-viewer/part-of-a-marble-sculpture-of-two-boys-fighting-over-a-game-of-knucklebones/EwEUI-Jx1buNHA?hl=en>.¹

Some of these depictions seem to be portraying a game described by the ancient scholar Julius Pollux, who states that "[t]he knucklebones are thrown up into the air and an attempt is made to catch them on the back of your hand. If you are only partly successful, you have to pick up the knucklebones which have fallen on the ground, without dropping the ones already on your hand."² Knucklebones³ are also mentioned in Homer's *Iliad* (23.88) when Patroklos admits that he killed a companion as a child over a game of knucklebones.⁴ Archaeology offers supporting evidence as *astragali* are found in children's tombs in conjunction with other toys such as Tomb 189 in the Antandros necropolis.⁵ The games that are associated with childhood recreational use of *astragali* are not merely an ancient phenomenon. In fact Bekircan Tahberer, the author of "Ástragaloi on Ancient Coins", claims to "vividly remember playing *beshtash*⁶ up until the age of eight or nine."⁷ He describes this game in a way remarkably similar to the game Julius Pollux described.

In a recent article published on the knucklebones discovered in the Le Grotte cemetery at Populonia and Poggio Picenze in Abruzzi, both Italian sites dating to the 4th – 2nd centuries BCE, Jacopo Mazzorin and Claudia Minniti analyze the significance of the bones found in these funerary contexts. The authors note that the tomb in the cemetery at Populonia contained 99 knucklebones which were arranged above the feet of the 8-9 year old boy who is buried there.⁸ Of the 99 bones 52 were from sheep (25 left and 27 right), 4 from goats (3 left and 1 right), 41 from pigs (24 left and 19 right), and finally 2 from a wild boar.⁹ 20 of the bones had been smoothed, 9 were modified, and only 12 contained cut marks. Jacopo and Claudia conclude that these bones were clearly considered as toys and even suggest that the inclusion of so many pig *astragali* may be indicative of this function as well, since other funerary contexts in which the bones seem to have a more protective ritual function are almost exclusively sheep and goat knucklebones. The Varranone cemetery at Poggio Picenze has a tomb with more than 100 knucklebones and is also analyzed by Jacopo de Grossi Mazzorin and Claudia Minniti of the University of Salento. Tomb 101 in this cemetery belonged to an adult woman and was arranged such that the majority of the knucklebones were placed between the body of the deceased and the entrance to the tomb.¹⁰ None of the bones were modified in any way and they all belonged to either sheep or goats, including 18 bones belonging to juvenile animals. Since these bones were arranged like a shield or a barrier between the deceased and the entrance of the tomb, these scholars believe that these bones had a protective function.

The bones from these two Italian sites are best compared to the remarkable Lucifero Necropolis at Locri Epizefiri in southern Italy. This site is unique in the study of *astragali* because it contains nearly 9000 knucklebones all found in tombs. Most of the tombs only contain 10-50 bones, but there are some with hundreds of knucklebones. As in Tomb 101 in the Varranone cemetery, the knucklebones are not found near the other grave goods and are arranged around the body. In these tombs there was always at least one knucklebone by the head of the skeleton while the rest of the bones were arranged as a protective barrier.¹¹ Bones are found in children and adults' graves and no distinction seems to be made between male and female burials either. Archaeologists noted several types of modifications present in the assemblage, including smoothing, drilling holes, and adding lead weights. The vast majority of the bones were unmodified, however, and this might suggest a culture in which there were several different uses for the knucklebone. Several theories have been put forward concerning these bones suggesting that they were used for dice games, divination, and weights, but the common and inescapable fact is that all of the bones were found in tombs and arranged around the bodies. Therefore, whatever their uses in life these bones must have had a connection with death and held some religious significance as a protective barrier for the deceased.

In addition to domestic and funerary contexts, *astragali* are also found in sacred sites such as cultic shrines, sanctuaries, and large temples. Probably the most well-known cache of *astragali* is the deposit found at the entrance of the Corycian cave near Delphi.



Figures 3-4: Google Maps images showing the Corycian cave situated in the hills just north of Delphi, Greece <https://www.google.com/maps/place/Corycian+Cave/@38.5119751,22.4593653,18461m/data=!3m1!1e3!4m5!3m4!1s0x135f7b8643ba52d9:0x6a54233fb1906d4f!8m2!3d38.5159795!4d22.5202836>

This deposit includes well over 22,000 *astragali* including 4,062 that had been worked, 31 engraved with lettering, and seven imitation *astragali* made of various materials.¹² These bones are generally agreed to be votive offerings, but by whom and for what purpose they were dedicated is unclear. Some scholars believe that the deposit was part of a coming of age ritual in which children dedicated their playthings.¹³ The great number of *astragali* that were modified and worked certainly might suggest this, but the site also has connections to a cult of Hermes and is located very near to Delphi, which is associated with Apollo. Since prophecy was the realm of Apollo and games of chance were often delegated to Hermes, cleromancy is an interesting convergence of the two gods' jurisdiction. Jennifer Larson, who specializes in ancient Greek cults and myth, believes that the knucklebones were used for divination.¹⁴ She analyzes the cult of Hermes, the importance of oracles and divination in ancient Greek culture, and the excavation reports from the Corycian cave as well as several other sanctuaries. There are no inscriptions at the site to clearly delineate the divinatory process such as those that exist at several sites in Asia Minor.¹⁵ These sites contained instructions on how to interpret a group of 4 or 5 *astragali* once thrown. Each side of the knucklebone corresponded to a number and the sum total of those numbers would then be compared to a list of possible prophecies. Larson asserts, therefore, that since no such inscription was found in the Corycian cave, "if an astragalus oracle existed at the Corycian cave, it must have been a much simpler affair."¹⁶ Furthermore, she argues that *astragali* would have been used without priestly oversight which would have given them both a popular appeal and inferior status.¹⁷

With the variety of different archaeological contexts and varying degrees of explanation, it is unclear exactly how *astragali* were used. Except in unique cases such as the oracles in Asia Minor, no inscriptions remain to describe the process to us. The question of priestly oversight has been raised by scholars such as Jennifer Larson when *astragali* have been found in sacred sites such as the Corycian cave. This question is even more pertinent in cases where deposits of *astragali* are discovered in temples as well, most prominent among them being the temple of Artemis in Ephesus. The archaeological report from this temple states that many *astragali* were found in the temple including 99 fairly complete and 35 half-complete artificial bones.¹⁸ Many of these artificial bones also had a hole drilled through the center which suggests that they were strung, suspended, or perhaps worn. Pindar indicates that divination would take place by casting lots; "*astragali* lay ready for the inquirer's use on the holy tables in the temple,"¹⁹ which might suggest that priests were not performing the divination on behalf of the individuals seeking prophecy, although they may still have been present. Nevertheless, this find certainly seems to confirm the religious importance of *astragali* in the Greek world. In his report Hogarth asserts that based on his research, which included an analysis of relevant coinage and literary references, "I have no doubt that our *astragali* are specimens used for divination in the Artemision, and, in the majority of cases at any rate, dedicated thereafter to the Goddess."²⁰

From the analysis of archaeological sites in the Greek world and in Italy several predominant explanations for the use of *astragali* emerge. It seems clear that knucklebones have been used extensively by children in Asia Minor, Greece, southern Italy, and even in Etruria. These bones are often found in children's tombs and in association with other toys and children's grave goods. Additionally, iconographic, artistic, and modern ethnographic evidence all points toward *astragali* functioning as objects of play. However, this is not the only conclusion. These knucklebones are also found as votive objects in religiously significant sites such as temples and shrines. In addition to this, both in

the Locri Epizefiri Necropolis of Lucifero and the Varranano cemetery at Poggio Picenze knucklebones were used as a protective barrier around the deceased. The variety of natural and modified *astragali* in the tombs at Locri Epizefiri suggests that whatever the bones were used for before their owner died they all held religious significance as grave goods. Finally, *astragali* have been documented as tools for divination in Asia Minor and Greece as well as their connection with ritually significant sites such as temples and shrines. In order to determine which of these uses is most likely for the bones found at Cetamura, the history and content of the site must be examined along with its connection to Etruscan religion.

4. Archaeological Context:

As previously mentioned, Cetamura del Chianti is an Etrusco-Roman site whose main period of use in antiquity dates to the late 4th century BCE to the mid-1st century CE. It is located on a hill-top in northern Etruria, modern-day Tuscany, between Florence and Siena. Several directors have led excavations here since the site's discovery in 1964 by Alvaro Tracchi.²¹ The Etruscan occupation of the site dates to the Late Etruscan Period²² and has been split into Phase I (ca. 300-150 BCE) and Phase II (ca. 150-75 BCE).²³ The occupation of the site is consistent through the Roman conquest and assimilation of Etruria and continues into the Roman Empire. It is possible to reconstruct much of the timeline due to the stratigraphy of the deep well that was excavated 2011-2014. The vast majority of the *astragali* discovered in the well were from the Etruscan loci or the transitional loci and thus the archaeological context of the Etruscan occupation of the site is of particular importance.²⁴

The excavations at Cetamura have uncovered evidence of an Etruscan sanctuary as well as multiple artisans' workshops including a kiln and a forge. Recent research on the site has focused on understanding the well and investigating this interconnected system of worship and work.²⁵ The structure of the sanctuary is unlike the typical Etruscan temple as described by the Roman architect, Vitruvius. It contains several rooms, an altar, and a channel leading to a cavity in the rock.²⁶ These features can be compared to several other Etruscan sites, most notably to Pian di Civita, Tarquinia with its channel which "was constructed to lead liquids from a horizontal stone altar surface down into a cavity, evidently natural, in the bedrock."²⁷ There were also several votive features discovered near the altar and significant evidence that the well was also used as a site for votive dedication or ritual deposition. Dr. Nancy de Grummond's analysis of the well notes that "[s]ome 54 votive vessels, mainly miniatures, and 46 ceramic and stone tokens in different shapes, some halved, all suggest a practice of making offerings, perhaps with divinatory aims."²⁸ She goes on to add the *astragali* to this list of offerings, an assertion with which this report concurs.

Since Cetamura had a special religious function, it is important to acknowledge and consider the possible connection between the religious activity occurring on site and the mysterious deposit of knucklebones. The Etruscans had many gods and their pantheon can be quite confusing since some of the gods seem to correspond to Roman and Greek equivalents, but there are many more deities whom scholars are still seeking to understand. Inscriptions at Cetamura mention the gods "Lur" and "Leinth" and "the evidence suggests that they were gods of fate and fortune."²⁹ This is significant for the study of the *astragali* at Cetamura in light of the fact that astragalomancy in the Greek world was associated with Hermes who was connected to fate and chance. The mythological connections are not the focus of this study, but the possible connection should not be ignored. Dr. de Grummond describes the site by saying, "[t]he picture we get at Cetamura, with its humble objects of iron and clay, is one that supports the hypothesis that the sanctuary was frequented especially by individual artisans..."³⁰ This site, therefore, offers a glimpse into how members of the "lower social category" worshiped.³¹ Cetamura provides an interesting context in which to study *astragali*, especially considering the assertions of Greek scholars about the public appeal and use of *astragali* among the lower classes.

5. Primary Research:

After examining the scholarship on Cetamura, especially its religious significance and votive deposits, the author predicted that the *astragali* found in the well were ritually important and possibly used for divination. With this preliminary hypothesis it was important to conduct a careful examination of the bones themselves. Every bone was weighed, measured, and photographed to provide a database of information for statistical analysis and further study. The inspection of the bones was conducted with several goals in mind. The examination looked for: signs of intentional modification, cut marks and signs of butchering, inscriptions, signs of use, and any other anomalies. A spreadsheet was created in which the bones were separated and categorized by the locus where they were found. This had the dual

purpose of tracking the spread of the bones and patterns of deposition as well providing a way to track any trends over time.

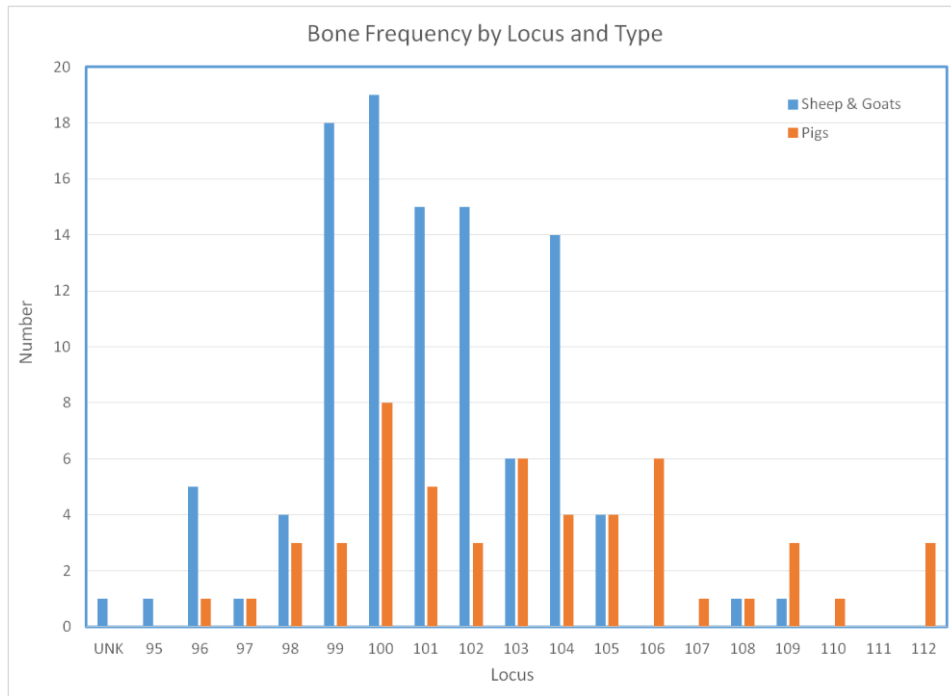


Figure 5: Frequency of bones by locus and type

I was looking in particular for any signs of intentional modification, such as smoothing of one or more sides, drilling holes into or through the bones, and adding weights of any kind. Since some of the bones from other sites contained simple inscriptions such as letters or short words, the author's investigation also looked for any kind of markings on the bones that might be of human design. Additionally, the examination extended to include signs of wear such as abrasions or scratches on the bones that might be the result of repeated use as tools of divination.

Having done preliminary research on the observations of archaeologists from other sites, there emerged a general consensus regarding the primary types of evidence that a bone had been worked by humans. The common modifications recognized by scholars who study *astragali* are: "cut marks, shaving down or polishing the sides of the bone, perforating or partially drilling one or more holes through the bone, and filling the hole or attaching to it a bronze, copper, iron, or lead fragment."³² There seem to be two categories of modification: functionality and aesthetics. Smoothing the sides, which are naturally uneven, seems to have been done for functionality's sake since there was not an equal chance of every side showing up. Flattening the sides and smoothing them corrects this to some extent.³³ Weighting the knucklebones with lead or another metal was also practiced and may have been an attempt to correct the uneven chance as well, or even to make one particular side more probable. Aesthetic modifications are more often seen on artificial *astragali* and were likely dictated by personal preference to set apart a unique set or to decorate the bones for an offering, such as at the temple of Artemis in Ephesus.

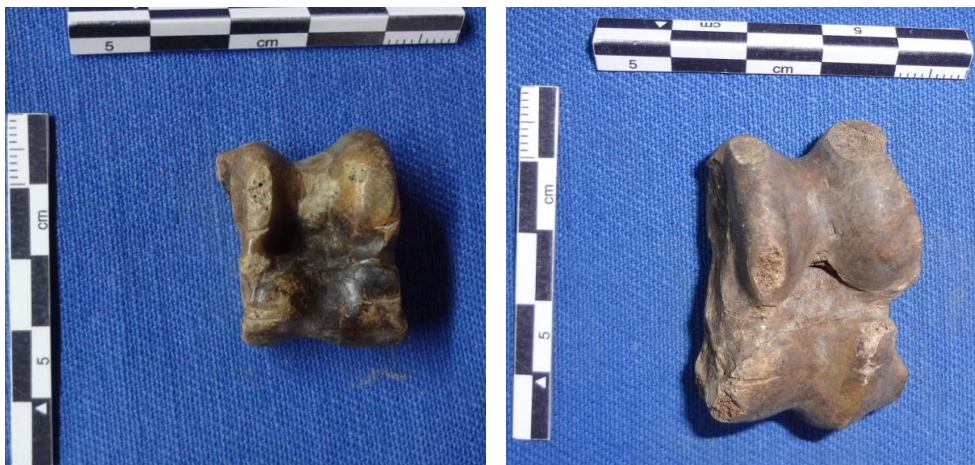
There were very few bones at Cetamura that showed signs of intentional modification. Four *astragali*, three belonging to sheep or goats and one to a pig, were clearly smoothed.



Figures 6-7: In Figure 6 (left) smoothing is apparent on the lateral side of the bone. Figure 7 (right) shows the same bone from the dorsal side which shows that both the medial and lateral sides have been smoothed with some minor scoring on the dorsal side as well.

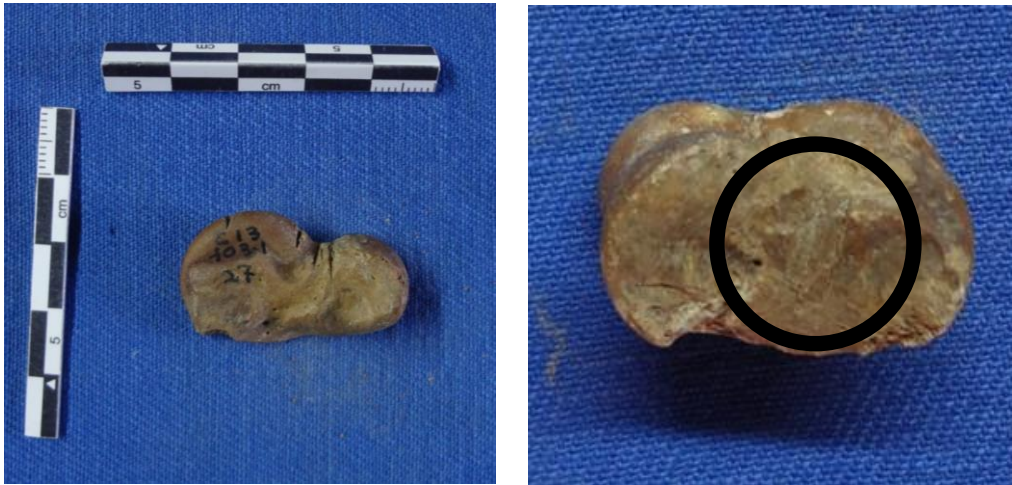
The medial and lateral sides appear to have been sanded down until they were flat. Unfortunately, no pattern is evident from the location of these bones since two of them were found in locus 100, one was found in locus 99, and the fourth was found in locus 106. The location of the first three bones pointed to a preliminary hypothesis that they were grouped in that transitional area which might suggest that they represent a change in use from the Etruscan occupation to the Roman. This seemed to be supported by the fact that an ivory die was also found in the transitional loci and there are more literary sources referencing *astragali* used as gaming pieces by the Romans than by the Etruscans. The discovery of a modified *astragalus* in locus 106, which is well within the Etruscan period³⁴, casts some doubt on this hypothesis. The lack of literary sources recording Etruscan use of *astragali* as gaming pieces does not necessarily mean that they did not modify knucklebones and use them for such a purpose. This hypothesis would also require the Roman loci of the well to contain more modified *astragali*, which does not appear to be the case based on an examination of Dr. Ornella Fonzo's 2013 bone report that matches all of the *astragali* discovered in the Roman loci of the well during 2013 with partial skeletons. By contrast, Dr. Fonzo's analysis of the bones from the Etruscan loci of the well identifies most of them as separate individuals. In any case, these modified bones represent only 2.5% of the knucklebones from the well and are more of an anomaly than a standard sampling of the deposit.

Another category of man-made alterations to the knucklebones is cut marks. The analysis of cut marks has been kept separate from that of intentional modification because many of the cut marks appear to be the unintentional remnants of the butchering process. There is a lot of consistency in the location and size of the cut marks that appear on these bones. This is relatively common, and nearly 1/3 of the bones have cut marks.



Figures 8-9 exhibit the most common type of visible cut marks, namely cuts of varying depth across the dorsal side of the bone. Figure 9 (right) shows examples of less uniform or regular cuts which are hypothesized to be the remnants from the butchering process.

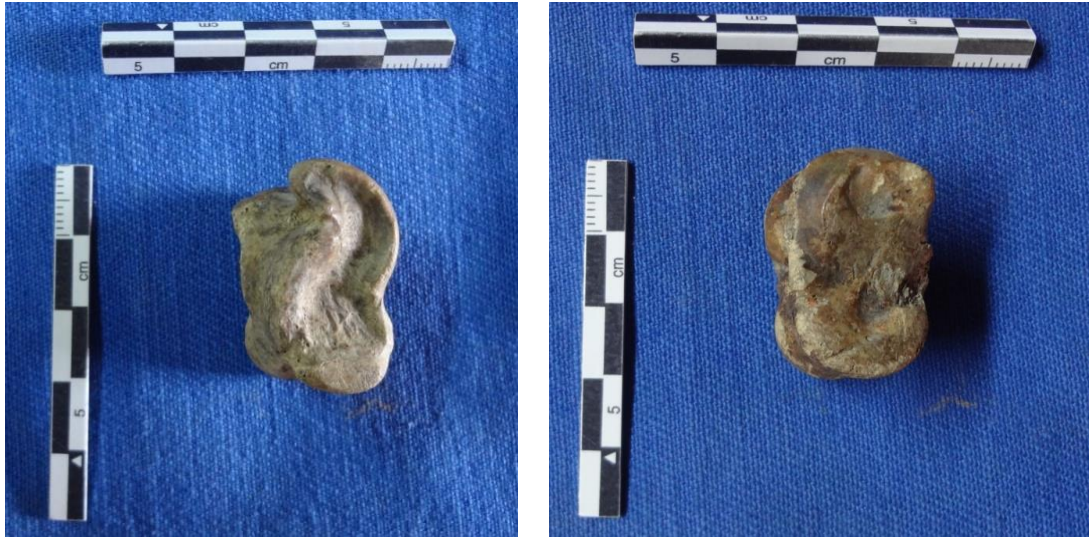
This type of modification seems to offer no functional or aesthetic improvement and is observable on bones of all sizes. However, there are also three pig *astragali* which were bisected by a clean cut, two longitudinally and one laterally. The same butchering marks mentioned above are still observable on these bones, but their most prominent feature is the clean cut which bisects them. It should be noted that only half of each bone was found. The other half of each of these bones was not thrown into the well.



Figures 10-11: Figure 10 (left) shows half of a knucklebone which has been bisected longitudinally, it also contains the cut marks across the dorsal side of the bone. Figure 11 (right) Knucklebone with three "tally" marks cut into one side.

The final type of cut mark to be considered was any kind of inscription. Even in the Corycian cave where over 22,000 bones were found, a very small number (about 0.14%) were inscribed. It does not seem to have been a common practice to write on the bones, and so it was not expected in this research project. There weren't any bones with words inscribed, but one knucklebone did have scratch marks that resembled tally marks. Since there were no ready points of comparison, further examination and research has been recommended.

Signs of intentional modification were very rare in this deposit of *astragali*, and so general signs of use were also an object of investigation. Nearly every specimen has had bone scraped, chipped, or scratched away. There are two distinct categories of bone wear that can be observed. Over half of the bones have been chipped away at the edges and the porous inside of the bone is visible. The edges are jagged, and little can be determined about patterns of wear and whether or not the bones were used for any purpose. The second category, however, is much more promising. Fewer than half, but still a significant number, show what appear to be scuff marks or scratches on the edges of the bone. These scratches are only on the surface and do not reveal the porous interior. Tests have not been able to be conducted to confirm this suspicion, but the marks seem consistent with repeated throwing onto a hard surface. These signs of wear, which are visible on approximately 25% (37 out of 158) of the bones, point strongly toward a pattern of repeated recreational or ritual use.



Figures 12-13: These two knucklebones show apparent signs of wear. The scuff marks around the edges and various scratches appear to be the result of extensive use *post mortem*.

Further research has been recommended to test this theory that the signs of wear were caused by tossing the *astragali*.

Finally, the *astragali* were sorted in a spreadsheet according to the animal and the locus. This provided a database by which the deposition of *astragali* through the stratigraphy of the well could be tracked in conjunction with Dr. Nancy de Grummond's article on the well. One of the first things that can be observed is that *astragali* are present from locus 112 through locus 95, and the loci contained within this span represent approximately 250 years of site occupation.³⁵ The deposition of *astragali* over so many decades clearly shows that it was not a single deposit but rather a periodic and infrequent, but reoccurring phenomenon. Although *astragali* are present in nearly every locus from 112-95, there are a few loci which contain a far greater number of bones. (cf. Figure 5) These loci around locus 100 are in a transitional zone between clearly Etruscan and the beginning of Roman occupation of the site. Since there is also an increase in other artifacts and not just *astragali*, it has been hypothesized that there may have been one or more episodes of dumping which produced these levels of the well's stratigraphy. The episodes of dumping may indicate that some of the *astragali* were deposited elsewhere on the site and later removed from their primary context and dumped into the well.

6. Conclusion:

Many of the knucklebones show signs of wear which seem consistent with either ritual or recreational use after the butchering process. Most of the cut marks observed can be understood as signs of butchering or skinning of the animal, however, the edges of 37 of the *astragali* were abraded as though they scraped against a hard surface repeatedly. This pattern of bone wear suggests that the bones had a function *post mortem* and seems consistent with the hypothesis that they were thrown. Additionally, the fact that the *astragali* were spread from locus 112 through locus 95 of the transitional period points to consistent use and deposition over two centuries. It seems to have been an activity that was repeated with regularity during the Etruscan occupation of the site into the transitional period, but not during the Roman period. A brief examination of the bone reports from 2013 concerning the Roman Loci of the well excavated that year reveals that the *astragali* found in those loci correspond to skeletons unlike the vast majority of those from the Etruscan Loci. The bones were deposited in small numbers over the course of decades, which combined with the evidence for other votive objects found in the well strongly suggests that the well was used as a site for ritual deposition of the *astragali*. Three of the knucklebones were bisected before deposition which remains consistent with evidence of ritual destruction and dedication observed with ceramic and stone tokens found in the well. (cf. Endnote 24) The signs of use combined with the spread of deposition, the ritual activity at this sacred site, and the Etruscans' affinity and respect for divination leads to the conclusion that these bones did have a ritual or religious function, possibly

divinatory, and that they were deposited as votive offerings or retired from use with regularity during the Etruscan occupation of the site.

7. Acknowledgements:

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8. Endnotes:

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- 1 For more information on *astragali* on Hellenistic era coins see:
Tahberer, Bekircan. "Astragaloï on Ancient Coins: Game Pieces or Agents of Prophecy?" *Journal of Ancient and Medieval Coinage* 26, no. 4 (April 2012): 4-20.
 - 2 Julius Pollux, *Onomasticon*, IX, 126 quoted in Jenifer Neils *et al*, *Coming of age in Ancient Greece: Images of Childhood from the Classical Past* (New Haven, CT: Yale University Press, 2003), 277.
 - 3 The Greek word transliterated is "Astragaloï" from whence we get the word "Astragali" which is a Latinized form.
 - 4 Homer, *Iliad*, 23.88 quoted in Jenifer Neils *et al*, *Coming of age in Ancient Greece: Images of Childhood from the Classical Past* (New Haven, CT: Yale University Press, 2003), 277.
 - 5 Bekircan Tahberer, "Astragaloï on Ancient Coins: Game Pieces or Agents of Prophecy?," *Journal of Ancient and Medieval Coinage* 26, no. 4 (April 2012): 8.
 - 6 Turkish for "five-stones"
 - 7 Bekircan Tahberer, "Astragaloï on Ancient Coins," 6.
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- 28 Nancy T. de Grummond *et al*, "Excavations in an Etruscan Well at Cetamura del Chianti," 13.
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- 31 de Grummond, ed. *The Sanctuary of the Etruscan artisans at Cetamura del Chianti*, 41.
- 32 Garth H. Gilmour, "The Nature and Function of Astragalus Bones," 168.
- 33 R. Barry Lewis, "Old World Dice in the Protohistoric Southern United States," *Current Anthropology* 29, no. 5 (December, 1988): 765.
- 34 Nancy T. de Grummond *et al*, "Excavations in an Etruscan Well at Cetamura del Chianti," 9.
- 35 Nancy T. de Grummond *et al*, "Excavations in an Etruscan Well at Cetamura del Chianti," 4-5. The well was dug around 300 BCE and transition period ends mid first century BCE.