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# The Dog in Roman Peasant Life

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# The Dog in Roman Peasant Life

## **Abstract**

Dogs have been a part of civilization for thousands of years and have maintained one of the closest animal relationships with humans that exist today. The following research seeks to understand this connection during antiquity. This study answers the question of what roles the dog filled during antiquity and uses a case study focused on Roman peasant life. In order to answer the question of what role dogs had in antiquity, this study makes use of several different types of material, including a zooarchaeological assemblage from a Roman site in Tuscany, Italy. This original material comes from work on the Roman Peasant Project (University of Pennsylvania, Università di Grosseto, Cambridge University) which is the first project aimed at understanding the experience of the peasantry in the Roman period. One of these sites produced the dog remains which were studied through zooarchaeological analysis to better understand the relationship that existed between the peasant occupants and the dogs. In order to fully understand the context these dogs existed in, research was conducted regarding other archaeological evidence of dogs in antiquity. Finally, the research made use of ancient authors and literature surrounding dogs in order to gain an understanding of how the dogs from the peasant site fit into the larger Greek and Roman worlds. In answering the research questions, the following work provides a general background on the domestication of the dog and some of its roles in antiquity including consumption, iconography, status, and religious function. This study is based on literary and archaeological evidence and seeks to present a comprehensive picture of the different roles of dogs in antiquity. The research provides the framework used to place the zooarchaeological case study in context and understand its results. The case study section presents data obtained from measurement techniques, age analysis, and other observations of the dog remains to understand the role of 2 animals at the particular site. This raw data is then used to develop several hypotheses that demonstrate different roles of dogs in antiquity. The following research is a comprehensive presentation of the role of the dog in antiquity and makes use of a specific case study that contributes original research to the existing literature. The study is unique because it focuses on aspects of classical archaeology that are often excluded: zooarchaeology and peasant life. The most significant take away of the research is its ability to understand the details of undetectable everyday life of a peasant community. Furthermore, it highlights the persistently important relationship that has existed between humans and dogs for thousands of years.

## **Disciplines**

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THE DOG IN ROMAN PEASANT LIFE

By

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### **Domestication of the Dog**

The scientific study of the domestication of the dog has been an ongoing process for over a century. Even Charles Darwin studied the matter and believed that the Jackal was the ancestor of the dog. Other ancestral candidates included the American Coyote and the African Hunting Dog. However, using comparative, behavioral, and molecular approaches, there has been a clear evolutionary relationship established between the wolf and the dog (Brewer 22).

Today most scholars believe the dog, or *Canis familiaris*, was the first domesticated animal occurring in central Europe (Russell 206). Brewer suggests that the wild ancestor of the dog originated in North America, similar to the horse and camel, traveled across the Bering Land Bridge, and quickly spread across Europe, Asia, and Africa (23).

The Canidae family is a diverse group, made up of 16 genera and 36 species including foxes, wolves, and coyotes. Canidae are characterized by a stereoscopic vision, keen sense of

smell, ability to hear a wide range of frequencies, and long limbs and digitigrade feet used for running fast over large distances. Canidae are also intelligent and social animals that tend to live in packs in order to raise their young and hunt (Brewer 7).

There are several competing theories for why the dog was domesticated. A few authors suggest that the reason for domestication was to use the dog as a food source. However this theory seems unlikely and dog was probably initially consumed during starvation periods when common domesticated animals were not available (Messent and Serpell 7).

Another line of reasoning is that dogs were domesticated as guards. Since the domesticated dog uses territorial barking more so than the wolf, it is possible that humans intentionally selected for this trait (Messent and Serpell 7). Though this trait would have been useful for newly developing human settlements, it is probably not the main reason for the domestication of the dog.

A somewhat common theory for domestication is hunting. For dogs and other canids, hunting in cooperative groups is a common occurrence and would have allowed humans to easily train dogs (Messent and Serpell 8). The benefits of having a dog as a hunting aid greatly outweigh the cost of raising and feeding it. These benefits include following the smell of animals, pursuing prey, bringing animals to bay, and increasing a hunter's kill (Russell 283). However, some scholars feel that this idea has been propagated by myths and iconographic representations of hunting dogs, often from Classical times which will be discussed later. Sauer argues that hunting dogs are features of advanced culture and would not have been part of an early Neolithic culture when domestication was first occurring (380).

The most convincing argument for domestication is a process of symbiosis or commensalism. As humans would have become tolerant of scavenging wild dogs which

eventually led to an intimate relationship. This type of domestication is considered symbiosis and would have involved humans welcoming and encouraging dogs to enter their settlements after the dogs initiated their presence. Once humans realized dogs were beneficial as watchdogs or aids in hunting, they would have started to accept them and eventually use them as companions (Russell 216). According to Crockford, domestication was initiated by wolves that were attracted to human settlements and food. Wolves that had calmer dispositions were more likely to be successful in obtaining food and welcomed into a settlement. Ultimately, dogs and humans came together because of mutual benefit (2). By living with humans, dogs acquired more reliable food sources and access to shelter and warmth. Conversely, humans gained partners in hunting, herding, guarding, and most importantly, companionship (Johns, 10).

This phenomenon eventually led to a domesticated animal with an overall body size reduction and increased docility compared to its ancestor, the wolf. This includes, a size reduction of the teeth, a reduction of complexity in cusp patterns, and a shortening of the snout. The teeth become much more compacted and crowded in the jaw and some may even be displaced and lost. Domesticated dogs often have higher frequencies of periodontal disease resulting from eating a softer diet that is provided by humans (Clutton-Brock 19).

The early examples of archaeological evidence for domesticated dogs is complicated since it is not always completely clear from fragmented and partial remains if a specimen is truly a domesticated example. The earliest archaeological evidence for the domestication of dogs comes from the Near East and southwest Asia pre-7,000 B.C. However, these examples consist of remains that are not incontrovertible remains. At the Palegawra Cave in Iraq, where it is often cited as the earliest example of a domesticated dog, a partial mandible is used as evidence for the

presence of the domesticated dog (Brewer 23). Such minimal evidence is common for early sites.

Early domesticated dog remains are relatively scarce and difficult to understand in Europe, as there are many claims at different sites. One of these claims is a fragmented cranium from Starr Carr, England dating to 7,500 B.C. which would be the earliest evidence in Europe (Brewer 23). Other early claims for domestication are examples from Germany that date from 8,000-7,000 B.C. in Senckenberg and 12,000 B.C. in Bonn-Oberkassel (Brewer 24).

These early examples are sparse and difficult to indisputably claim as domesticated remains because of the anatomical similarity between wolves and primitive dogs (Clutton-Brock, 19). Furthermore, many of these canid remains are fragmented and poorly preserved, making it difficult to make completely conclusive identifications. However, after 7,000 B.C. there is an overall increase in examples of the domesticated dog. This increase in examples of domesticated dogs coincides with the Neolithic period and spread of agriculture throughout the world. Brewer argues that the simultaneous adoption of agriculture and its resulting economies allowed the dog to evolve and fill a variety of roles necessary for agriculture (24). Thus, the adoption of agriculture into human lifestyles resulted in an increase of domesticated dogs as seen in the increase in archaeological examples.

Once dogs were domesticated, they quickly spread across the world and consumption occurred throughout southeast Asia, Indochina, North and Central America, parts of Africa, the islands of the Pacific, and Europe (Podberseck 620). Unfortunately, the actual date that dogs were domesticated only gives information for when humans started to selectively breed them. It does not give information for how long a close relationship existed before domestication (Messent and Serpell 6).



The timeline of the domestication of the dog is the center of a long line of research and literature. It is important for this study to understand that the human-dog relationship has been an extensive process that has existed for millennia. Furthermore, it is crucial to note the various hypotheses that exist for why the domestication took place because it helps to understand the range of roles dogs had in the ancient world and the specific study that will be addressed later.

### **The Dog in Antiquity**

#### *Literary Evidence*

Dogs have been featured in many literary works from antiquity. Odysseus' dog Argus is one of the earliest mentions of a pet in Greek writings (Homer 17.301-2). Other mentions of dogs in literature include Ovid's *Metamorphoses* which refers two hunting dogs of Cnossian and Spartan breeds (3.206). Aristophanes' *Lysistrata* references a Molossian dog used as a guard dog (414-417). The most valuable information comes from handbooks and works written specifically about the care and keeping of dogs. The Greeks were the first to write handbooks about dogs, a tradition the Romans continued. Many ancient authors focused their work on advice for farmers and breeders in the agricultural world. Aristotle's *History of Animals* gives information about breeding and reproduction. Marcus Terentius Varro's *Res Rusticae* contains three books on agriculture and domestic animals. Another author who offered an in-depth overview on agriculture was Lucius Junius Moderatus Columella. His work, *De Re Rustica*, contains twelve books addressing matters such as trees, livestock, and veterinary medicine. The best-known Roman writer that worked on the topic of animals was Pliny the Elder. His

comprehensive work, *Natural History* includes thirty-seven books that cover a wide range of topics on animals such fish, birds, and land species (Phillips 83).

Other authors, like Xenophon, focused on hunting. Xenophon covered dogs in his treatise, *On Hunting*. Authors such as Grattius and Arrian also wrote about dogs in hunting treatises. Plutarch's work, *The Roman Questions*, addresses different attitudes towards dogs. Ovid's *Fasti*, which covers the festivals of the Roman calendar, makes note of the dog's religious roles.

Though the literary evidence is important for understanding how ancient authors regarded dogs in society, it does come with bias. These works are reflections of rich and literate males and do not provide the full representation of dogs in ancient society. These authors often focused on elite activities such as hunting and breeding, which would not have been relevant to the majority of the population. As Adrian Phillips phrases it, "one should not lose sight of the humble mongrel." The most numerous dogs in the ancient world were simple mutts that did not experience specific breeding or receive pampered treatment (87).

In addition, the literary evidence is not always supported by the archaeological remains. The literature makes it clear that civilized people did not consume dog meat and they were only sacrificed to chthonic deities. However, zooarchaeological remains demonstrate that dogs were sacrificed to a wide range of deities and were sometimes consumed (Russell 118).

### *Variations and Breeds*

Today, there are more than 400 recognized breeds of dogs that range in size from Chihuahuas to Great Danes. Though the Classical breeds were not as numerous, variation and specific breeds first began to appear during this time. Starting in the 5th millennium B.C., Egypt

and Mesopotamia began to develop breeds for hunting (Brewer 28). In Italy, the Iron Age witnessed the first selection for specific breeds and resulted in larger animals. However, the greatest size variability is seen in the Roman period, with the appearance of lap dogs and other specific breeds (De Grossi Mazzorin 155).

Ancient sources mention many different breeds, but it is difficult to know if these were actual breeds with selected traits or rather geographic names assigned to dogs from different regions. Whichever the case may be, it is clear there was a great diversity of dogs in the classical period. Literary sources mention about fifty different breeds ranging from distant locations like Britain, Ukraine, India, and Egypt (Phillips 85). In his treatise, *On Hunting*, Xenophon discusses the Cretan, Indian, Laconian, and Locrian dogs, all different hounds for hunting deer and wild boar. About four hundred years after Xenophon, Grattius makes note of twenty-two breeds, including a Celtic hound called a *vertragus* that was “swifter than thought or a winged bird” (*Cynegetica* 203-6).

Aristotle and Pliny make note of a small pet dog called a Maltese, a breed still prominent in modern times (Aristotle, *History of Animals* 612b.10; Pliny, *Natural History* 3.26.152). An example of the dog was found on a Greek Amphora from the Etruscan town of Vulci (see Figure 1). Martial’s poem *Issa*, written in the 1st century A.D., describes a small, white Maltese dog (Phillips 93). Other breeds reported include the Acarnanian, which was “marvelously quick, marvelously efficient in scent” (Grattius, *Cynegetica* 183-5). Often referenced was the Laconian hound from Sparta. Xenophon, Aristotle, Grattius, Arrian, Pollux, Oppian, and Ovid all mention this breed and Sophocles describes a “keen scented course of some Laconian bitch” (*Ajax* 1). Though it is difficult to know if the classical breeds were truly selected for, it remains clear that there was enough visible and behavioral differences for ancient writers to observe and record.

### *Role of the Dog*

Since the domestication of dogs, they have become intimately associated with every part of human life. Romans truly diversified dogs and created a wide array of roles for them in society. Romans kept hunting dogs, guard and shepherd dogs, draught and performing dogs, and pet dogs (MacKinnon, "Sick as a Dog" 291). Columella believed that there were three main reasons for having a dog. He stated, "One type of dog is chosen to oppose the plots of human beings and watches over the farm...a second kind for repelling the attacks of men and wild beasts and keeping an eye at home in the stables and abroad on the flocks as they feed...the third kind is acquired for purposes of the chase" (*On Agriculture* 7.12.2).

Hunting literature in the classical world was abundant. Xenophon's account discusses hunting on foot with scent-hounds in order to pursue hares, deer, and wild boar. He describes in great detail his idea of a perfect hunting dog and its attributes. Xenophon's standards for hunting hounds are as follows:

"They should be big. Next, the head should be light, flat and muscular; the lower parts of the forehead sinewy; the eyes prominent, black and sparkling; the forehead broad, with a deep dividing line; the ears small and thin with little hair behind; the neck long, loose and round; the chest broad and fairly fleshy; the shoulder-blades slightly outstanding from the shoulders; the forelegs short, straight, round and firm; the elbows straight; the ribs not low down on the ground, but sloping in an oblique line; the loins fleshy, of medium length, and neither too loose nor too hard; the flanks of medium size; the hips round and fleshy at the back, not close at the top, and smooth on the inside; the under part of the belly itself slim;

the tail long, straight and thin; the thighs hard; the shanks long, round and solid; the hind- legs much longer than the fore-legs and slightly bent; the feet round” (*On Hunting* 4.2).

Xenophon also includes his recommendations for breeding, raising puppies, and training (*On Hunting* 7.1-6). He discusses specialized equipment for hunting dogs that includes collars, leashes, and surcingles (*On Hunting* 6.1). What can be understood from Xenophon’s account is that dogs used for hunting received extreme attention and care. This account demonstrates the prized nature these hounds would have had in elite Roman society. Furthermore, Xenophon presents a hierarchy in ancient dogs between the masses and the specialized dogs of the hunt. “Inferior specimens (that is to say, the majority) show one or more of the following defects. They are small, hook-nosed, grey-eyed, blinking, ungainly, stiff, weak, thin-coated, lanky, ill-proportioned, cowardly, dull-scented, unsound in the feet,” writes Xenophon about such dogs (*On Hunting* 3.2). It is reasonable to conclude then, that the common farm dogs of the non-elite and peasants would have been considered second-class to dogs of elite hunters.

Arrian also discusses hunting techniques using two hounds to physically chase and catch hares. His ideal hunting dog includes having a long body, which allows for speed, and a broad chest (*On Hunting* 4.2, 5.7-9).

Guard and shepherd dogs were also prominent in antiquity because of the importance of agriculture. Varro gives his standard for a guard dog: “They should be comely of face, of good size, with eyes either darkish or yellowish, symmetrical nostrils, lips blackish or reddish...sharp teeth covered by the lip, large head, large and drooping ears, thick shoulders and neck, the thighs and shanks long, legs straight and rather bowed in than out, large, wide paws which spread as he walks...with a deep bark, wide gape, preferably white in color, so that they may the more readily

be distinguished in the dark; and of a leonine appearance” (*Rerum Rusticarum Libri Tres* 2.9.3-4).

Columella gives his own standards for guard dogs which he believes are essential for farmers to protect their property and herds. He emphasizes a strong build and black coat to blend in with the dark at night (*On Agriculture* 7.12.7). Columella also discusses key traits of shepherd dogs. Shepherd dogs should be white to distinguish from raiding wolves and light to run as fast as them “since he has to repel the stealthy lurking of the wolf and to follow the wild beast as he escapes with his prey and make him drop it and bring it back again” (*On Agriculture* 7.12.9).

### *Consumption*

Though for many cultures eating dog meat is considered taboo, there are some classical accounts of the practice. Pliny describes a group of people in his *Natural History*, called the Canarii who consumed dogs (5.1). The Roman historian, Justin, writes about the consumption of dog by the Carthaginians in the 3rd century A.D. (Simoons 238).

Dogs were originally implemented into human lifestyles with their domestication and filling of various roles such as hunter, protector, and companion. This close relationship with humans has allowed cultures and societies to easily procure flesh from dogs. As suggested by Simoons, humans most likely allowed dogs to associate themselves with settlements not only for their hunting abilities, but also in order to have an available supply of meat for consumption (200). This view has been argued by others as well. Clutton-Brock argues that as the occupation areas of human and wolves began to overlap, humans most likely would have killed wolves and occasionally consumed them as well (20).

Dog meat was procured and prepared in similar methods used in other animals. The information that is used to understand these processes mostly comes from archaeological remains. The steps involved in preparing a dog for cooking and consumption seems to be similar across most groups. At the Greek site of Kastro, cut marks on canid bones demonstrate a process that first involved skinning. Following the skinning, dogs were then dismembered and defleshed (Snyder and Klippel 223). At other sites similar patterns of cut marks on the bone remains indicate an initial skinning of the dog and then a process of disjointsing (Morey 166). In Neolithic and Bronze Age sites in central and eastern Europe evidence of broken and crushed skulls have been interpreted to mean that inhabitants were consuming dog brains and were perhaps a type of delicacy (Simoons 248).

Another facet of the preparation of dog meat was the kill-off patterns or when an animal was selected for slaughter. At the Roman Gaul site of Levroux, France evidence suggests that 69% of the dogs being killed for food consumption were younger individuals. This indicates that butchery was mostly intended for young individuals; a pattern commonly seen with animals used for meat (Horard-Herbin 98).

Interesting evidence for the actual ceramics associated with dog consumption have been discovered at Sardis, Lydia during the 6th century B.C. Remains of a young puppy were discovered inside a jug-shaped cooking pot. Associated with this was a small wine pitcher, a cup, an iron knife, and a dish that might have held bread. The bones of the puppy displayed cut marks that are consistent with butchering including skinning and cutting (Simoons 246).

Another example of consumption is the Bronze Age sites of Kastro and Lerna. Though not a typical food of Greece, there is evidence for the consumption of dog meat including cut and burn marks (Simoons 235). The importance of the dog in Greek life is also reflected in literary

sources and depictions of dogs on ceramic pottery. At Kastro, there is large amount of dog bones that display cut marks and breakage that demonstrate consumption of dog as food. On the inferior borders of two mandibles, two metapodials, and one phalange there are marks that indicate the use of a knife to separate the skin from the bone in order to skin the animal. Another large amount of marks are concentrated on joints and vertebra which reveal the dismembering of the dog for cooking. Since most of the major limb bones were broken into one or more fragment, this is indicative of the preparation of the dog body for cooking in a small ceramic container. Furthermore, the absence of burning also supports the idea of the dog carcass being boiled rather than roasted on an open fire. This type of cooking was also seen in other domesticated animals, such as sheep, goat, pig and cow, at Kastro and was probably used to maximize the retention of fats. At Lerna, dogs were also utilized for their food contribution. Notably, this site was characterized by the considerable amount of crania breakage with no complete cranium recovered. This type of evidence points to the use of dog's brain in the food supply (Snyder and Klippel 223).

Another Greek site, Kastanas, also demonstrated the cooking and consumption of dog meat. However at this site, burning on bones, primarily mandibles and tibiae, was recorded on more than 20% of the remains. This statistic indicates that at this site the cooking technique was probably the use of an open fire (Snyder and Klippel 224).

Overall, the consumption of dogs is marked by characteristic evidence on the faunal remains. This includes cut marks from skinning and disjoints, smashed skulls, and evidence of burning.



### *Imagery and Iconography*

The ancient Greeks and Romans used dogs in their artwork ranging from pottery to statues. Depictions of hunting dogs are the most numerous due to the elite nature of the activity. Thus, hunting scenes symbolized wealth. The Greek ‘Amasis painter’ depicted a scene of a returning hunter accompanied by his long-tailed hound and a dead fox and hare the dog helped to acquire. The jug dates from 550-530 B.C. (see Figure 2). Another example from Greece is a vessel used for pouring libations in religious rites (see Figure 3). The inside of the *phiale*, dating from 500-470 B.C., is decorated with four hounds chasing a hare into a net, held by a man. Hunting dogs also appeared on luxury objects, such as a Roman gold bracelet from Hoxne, England, found among a hoard of coins, gold jewelry, and silver tableware from the late 4th century A.D. (see Figure 4) The scene is similar to the Greek *phiale*: a hound chasing a hare into a net. A Roman pot from the 2nd-3rd century A.D., also depicts the common theme of hunting hounds chasing hares (see Figure 5). A Greek *rhyton*, used for drinking wine, depicts the Laconian hunting hound (see Figure 6). This 4th century B.C. drinking cup was painted by the White Saccos Painter and was found in Southern Italy. A bronze Roman oil-lamp, dating from the 1st century A.D., is in the shape of dog’s head with a hare in its mouth (see Figure 7). Interestingly, these vessels would be considered high-class pottery which demonstrates how hunting hounds were used by ancients to show wealth and high-status (Johns 32-157).

There are also depictions of guard-dogs in the ancient world. One famous piece is a seated marble dog, considered to represent the Molossian hound described by Aristophanes. This is a Roman marble copy from the 2nd century A.D. of a Hellenistic bronze (see Figure 8).

Depictions of herding and sheep dogs also occur in the Roman world. A silver bowl dating from

the 4th-5th centuries shows a scene of a shepherd, his dog, and a ram (see Figure 9). Other common representations of guard dogs are from floor mosaics (Johns 48-52). One in particular, from Pompeii warns of the dog that is protecting the household (Toynbee 107). These so-called *Cave Canem* mosaics were popular motifs for Roman villas (see Figure 10). Petronius comments on one, “There on the left as one entered...was a huge dog with a chain round its neck. It was painted on the wall and over it, in big capitals, was written: Beware of the Dog” (*Satyricon* 29).

Dogs were also depicted in association with gods or mythic characters. A Roman copper coin of Antoninus Pius from 157 A.D. shows an Egyptian goddess riding upon a great dog (see Figure 11). A Greek marble votive relief from the 4th century B.C. portrays the goddess Hecate and a large canine companion (see Figure 12). The myth of Actaeon being attacked by a pack of hounds is also a common theme in ancient artwork. One Roman statue from the villa of emperor Antoninus Pius depicts Actaeon being attacked by two savage dogs (see Figure 13). Depictions of the mythical guard of the underworld, Cerberus, are also common in ancient iconography. A cast bronze figure of Cerberus from the first to second centuries A.D. shows the iconic dog with three heads (see Figure 14)(Johns 59-80).

Dogs were frequently shown as pets and companions. A limestone tombstone from the 2nd century A.D. depicts a small girl with her small pet dog (see Figure 15). An inscribed Roman marble tombstone from the 2nd century A.D. is entirely dedicated to a couple’s pet, named Pearl. The epitaph describes the dog’s hunting skills, beauty, kind temperament, and how she would lie in her master’s lap and curl up on their bed at night (Johns 198).

Artwork is also important for understanding how dogs looked in ancient times and the types of breeds that existed. One important breed for the elite class was a slender, swift sight-

hound known for its hunting abilities. An example of this type is seen in “The Townley Greyhounds” Roman marble, which shows two dogs interacting with one another, rather than hunting (see Figure 16). This marble shows the artist’s appreciation for the social life and behavior of dogs and an affection towards the animals (Johns 121).

As previously discussed, dogs played countless roles in antiquity, further supported by the many ways they are portrayed in artwork. The prevalence of dogs in iconography and imagery helps to demonstrate how ubiquitous dogs were and how important they were to society.

### *Status and Attitudes Towards Dogs*

For some Greeks, dogs were associated with the underworld and seen as impure animals and sometimes evil. Dogs were not allowed on the island of Delos or the Athenian acropolis. Plutarch explains that, “Because the dog is a belligerent creature they exclude it from inviolable and holy shrines, thereby offering a safe place of refuge for suppliants” (*Roman Questions* 111). Their association with the underworld prohibited the use of dogs in ritual ceremonies for Olympian gods. Instead, dogs were used mostly as sacrificial victims in ceremonies for chthonic gods (Chilardi 36). This meaning will be explored in further detail in a later section.

Romans had varying attitudes towards dogs. They were prohibited at the Temple of Hercules in the Forum Boarium. However, at the Temple of Jupiter Capitolinus dogs were used as guards and at the Temple of Hephaestus on Mount Etna they were considered sacred (De Grossi Mazzorin and Minniti 63). Pliny the Elder had a positive attitude towards dogs and considered them the most faithful friend of man because of their loyalty and protective nature.

He states that “Dogs are the only animals that are sure to know their masters; and if they suddenly meet him as a stranger, they will instantly recognize him” (*Natural History* 8.61).

As previously mentioned, dogs were used as status symbols by humans. Roman iconography mostly portrays scenes of dogs that are involved in a hunt or as a pet. These two types of dogs were associated with elite activity and owning either hunting dogs or a small lapdog represented an elevated status. In fact, the introduction of toy breeds of dogs was a phenomenon resulting from these elite connotations (MacKinnon “Sick as a Dog” 291). In Sybaris, the pet-owning class had Maltese lapdogs that owners carried everywhere and shared the same bed. The philosopher Theophrastus buried his Maltese dog under an inscribed tombstone and even the emperor Hadrian had enormous tombstones built over the graves of his favorite pet dogs (Serpell 36). Pet-keeping was a widespread practice and accepted in the Greek and Roman worlds (Bodson 27). Whether dogs were initially acquired as hunting or herding assistants, they often took on the role of companion or pet. Arrian in his work, *On Hunting*, expresses his fondness towards his favorite hunting dog.

“I reared a hound with the greyest of grey eyes and she was fast and a hard worker and spirited and agile...And apart from that she is the most gentle and most fond of humans...For since she was retired from the chase, she never leaves us...If I am indoors she stays with me, and accompanies me if I go out anywhere; she escorts me to the gymnasium, and sits by while I am exercising...If one of us is ill she does not leave him. If she sees us even after a short period of time, she jumps up in the air gently, as if welcoming him, and she gives a bark with the welcome, showing her affection” (5.1-6)

This quote from Arrian demonstrates that dogs often became more than simply a hound used for hunting, but rather a beloved pet.

Dogs are the most common animal to be found in human graves or buried like humans. Archaeological examples exist of cremation, burials in pits or urns, and burials with other animals. The burial of pet dogs was also a widespread practice, with examples in Greece and the Aegean islands, Asia Minor, Egypt, Sicily, Rome and Southern Gaul. One of the earliest examples of an animal funeral is a cenotaph of the 5th century B.C., built to honor Xanthippos' dog (Bodson 30). An epitaph was carved onto a sarcophagus for a pet dog named "Crown" and proclaimed ancient pets were buried like human beings (28). A marble grave stele from about 150-200 A.D. in Rome states, "To Helena, foster child, soul without comparison and deserving of praise" (29). In this instance the pet dog was comparable to a child and had a high enough status to receive its own funeral stele. The loving language of the stele even treats the dog as an actual human. Most of the examples of dog burials with specific epitaphs date to the Hellenistic and Roman Periods which may reflect an increasing closeness in the human-animal relationship (30).

The care and rearing of dogs was also a topic discussed by ancient authors. Grattius advises to choose a puppy that has vigor, strength, and "humble[s] his light brothers with his weight" (*Cynegetica* 278-299). Columella advises that puppies should not be allowed to run loose during the first six months of their life if they are meant to serve as guard dogs (*On Agriculture* 7.12.12). Both authors devote much of their work to the topic of raising dogs, which demonstrates the attention to this matter by ancient societies.

The feeding of dogs mainly involved soft foods that were also consumed by humans. Mainly, dogs were fed a mixture of cereals including barley, whey, and bread, as well as beans. For sick dogs, it was recommended to include meat from ox in order to provide more strength

(Phillips 96-97). Varro suggests that feeding dogs broken bones will “make their teeth stronger and their mouths of wider stretch” (*Rerum Rusticarum Libri Tres* 2.9.10).

The health of animals is also significant for understanding human’s attitudes towards dogs. MacKinnon presents an analysis of the pathological conditions of Roman dogs (“Sick as a Dog” 290-309). The archaeological record of disease is important for understanding how humans treated their dogs and the conditions they lived in within the Roman Empire. Overall, the Roman dogs analyzed in the study appeared to be in decent health and had minimal evidence of maltreatment. The most widespread affliction was fractures and diseases of the joints, such as osteoarthritis, which are common in canids. Furthermore, pathologies on leg bones were frequent across time periods and sites and often occurred simultaneously with inflammation and osteoarthritis, specifically the femur and pelvis articulation. Vertebral pathologies were mostly marked by periarticular osteophyte developments on vertebrae, which is common in other canids like foxes and wolves. MacKinnon notes that older dogs displayed the most frequent instances of pathologies as well as smaller dogs under 50 cm. MacKinnon suggests that the pet role that was mostly filled by these small dogs since they received the most human care. The pathological conditions are important to note because they provide physical evidence of the treatment of dogs. From MacKinnon’s work, most dogs were treated well in the Roman Empire which reflects a generally positive attitude towards the animal.

### *Religious and Sacrificial Roles*

Dogs are connected with religious rites for a wide range of cultures. In Greek tradition, the goddess Hecate, who is associated with death and the underworld, is sometimes represented as a dog. Occasionally, dog meat was consumed in ritual meals in her honor. Pausanias describes the sacrifice of a black puppy to the goddess Hecate (*Description of Greece* 3.14.9). He also mentions the sacrifice of a puppy to Enyalios, or Ares, by Spartan youths. Pausanias justifies the sacrifice of dogs because, “the most valiant of tame animals is an acceptable victim to the most valiant of the gods” (*Description of Greece* 3.14.9). Plutarch describes the same ritual (*Roman Questions* 111). In another classical setting, Romans consumed dog meat at feasts that served to celebrate the inauguration of new priests (Simoons 234). Greeks considered dogs impure animals and thus designated them to rituals involving chthonic gods or those of the underworld. Plutarch states, “the men of old think that this animal was wholly pure, for it was never sacrificed to any of the Olympian gods ; and when it is sent to the cross-roads as a supper for the earth-goddess Hecate, it has its due portion among sacrifices that avert and expiate evil” (*Roman Questions* 111). As seen in the *Illiad*, *Odyssey*, and Hesiod’s *Theogony*, the dog Cerberus, serves as the guard for the underworld. This association is played out in rituals connected with other chthonic gods. Dogs were often used as sacrificial victims in ceremonies dedicated to the underworld goddess Hecate and barking was often seen as a sign of her presence (Chilardi 36). In early depictions of Hecate, she is seen depicted as dog headed or accompanied by dog-like demons (De Grossi Mazzorin and Minniti, 62). This connection bestowed the characteristics associated with Hecate to dogs: night, darkness, and magic.

In Etruscan culture, dogs had similar connotations. The Tombs of Golini at Orvieto and Tomb of Orco in Tarquinia both have paintings in which Hades, the keeper of the underworld, is dog-headed. Other Etruscan traditions associate dogs with the cult of Calu, a god that is responsible for the subterranean regions of the earth (De Grossi Mazzorin and Minniti 63).

Pliny the Elder, details Roman attitudes of a dog's role in rites of aversion. These rites were used to ward off people or animals that were considered harmful. Pliny discusses the parts of the dog used for different needs. For example, the blood of a dog would keep away evil spirits of the dead and protect a family from being haunted. The bladder of a black male dog could act as a protective amulet for warding off harmful magic. The longest tooth of a black dog could cure quartan fever. A specific recipe for an earache included mixing the ashes of the head of a dog who had died of rabies with cypress oil (*Natural History* 30.8). It is clear from Pliny's account that Romans used dogs to protect people and their homes. This differs from Greek attitudes, which often portrayed the dog as a dark and evil animal associated with chthonic gods. Instead, the Romans had started to incorporate the animal into rites used in daily life.

In addition to aversion rites, dogs were sacrificed for purification and healing practices. Plutarch accounts the *Lupercalia*, which involved the sacrifice of a dog for purification (*Roman Questions* 111). He also writes that "Nearly all the Greeks used a dog as the sacrificial victim for ceremonies of purification; and some, at least, make use of it even to this day. They bring forth for Hecate puppies along with the other materials for purification, and rub round about with puppies such persons as are in need of cleansing and this kind of purification they call "periskylakismos" (*Roman Questions* 68). According to Nerissa Russell, the sacrifice of dogs which were considered unclean resulted in a cathartic, purifying effect for those doing the sacrifice (114). Pliny cites the practice of rubbing sacrificed puppies over the diseased portions



of a person's body in order to transfer the disease to the dog (*Natural History* 30.8). This practice supports Russell's claim that an impure animal can have purifying effects.

The healing nature of dogs can be traced to the cult of Asclepius, a Greek god of medicine, who was accompanied by a dog. Some of the healing temples associated with Asclepius had sacred dogs lick sores or injuries in order to heal patrons (Serpell 74). Two other cases regarding purification involved the death of human infants. A well dating from the 2nd century B.C. at the Kolonos Agoraios in Athens contains the bones of 450 human newborns and 150 dog newborns. It is likely the dogs were buried with the infants to purify them of the sickness that caused a premature death. A cemetery in Lugnano, Italy contains 47 human infant burials with accompanying dogs. In this case, it is probable that the infants all died of malaria and the dogs were used in a purifying rite (De Grossi Mazzorin and Minniti 63).

Ancient sources and archaeology also support the idea that dog sacrifice was used in procreation and fertility rites. Dog bones and ceramic sherds found in a well at Pyrgi, Italy were part of rites honoring Eileithyia, the goddess who protects childbirth. Another instance of the sacrifice of puppies was found in the area of St. Omobone in Rome. This sacrifice was associated with a ceremony honoring the Latin goddess Mater Matuta and fertility (De Grossi Mazzorin and Minniti 64). Plutarch cites instances of the ritual sacrifice of a puppy in order to appease the Roman goddess Geneta Mana who is responsible for the menstrual cycle and fertility.

Agricultural rituals often involved the use of dogs. The most prominent of these examples is the the *Robigalia*, a Roman festival performed to protect the harvest from Robigus, the god of agricultural disease (De Grossi Mazzorin and Minniti 65). According to Columella, the festival's main sacrificial offering was an unweaned puppy (*On Agriculture* 2.21.4). The

offering of puppies was called the *augurium canarium* and required the offering of dogs with a red coat. The red fur represented the color of the disease, robigo, which the ritual intended to prevent. Ovid writes, “They dry earth is parched and the crops ripen prematurely. This dog is set on the altar to signify the starry one” (*Fasti* 4.905-42).

Another frequent way dogs were sacrificed was in foundation offerings for protection. This common Roman practice involved including a sacrificed dog in the walls of a city, building, or fortress. De Grossi Mazzorin and Minniti cite many archaeological examples across the Roman world (62-65). At a bastion of the Porta Mugonia of Rome the remains of three dogs were recovered in layer of ash and ceramics and had butchery marks. At Ariminum, a small dog skeleton was found in the foundation of the defense walls used for protection of the Roman colony. At the Porta Marina in Paestum, a pit at the northern bastion of contained the skeleton of a dog.

Dogs have also been sacrificed in association with the closure or abandonment of a site. At Torre di Satriano a pit was uncovered with an articulated dog skeleton. The dog skeleton was positioned in the center of a burnt area which represents the ritual act that was performed as the sanctuary was abandoned and the pit was closed. A similar case at the Lavello Sanctuary had remains of dogs that were sacrificed and buried as the site was abandoned. A temple of the late 4th century B.C. at the mouth of Sele River has similar patterns. Two of the bothroi at the site contain an articulated skeleton of a dog laid on top of a deposit of ceramics, bones, and charcoal about 1.5m deep. Similar to the pit at Torre di Satriano, the stratigraphy of these pits supports the argument that the ritual acts of sacrificing a dog was directly related to the closure of the sacred area and abandonment of the site (De Grossi Mazzorin and Minniti 65).

The association of dogs with ritual acts is widespread and varying. Dogs are connected with Hecate and the underworld, magical rites, agriculture, fertility, and protection. However it seems that through all of these different types of relationships, one thing remains clear: dogs were considered to have a supernatural quality which made them appropriate for religious sacrifice, foundation offerings, and agricultural festivals. Russell suggests that the sacrifice of dogs was in fact a symbolic statement. She reasons that killing a dog, a domesticated animal often considered a special companion, would have a much more powerful effect than sacrificing a food animal. Thus, the sacrifice of dogs was a unique act that would not have been as frequent as other animals. This specialness permeated throughout Italy and continued over many time periods (114).

### **Archaeological Examples of Dogs in Antiquity**

The presence of canid remains throughout Italy as well as Roman Britain and France is demonstrated in Table 14. These instances help to systematically illustrate how dogs are found in both ritual and non-ritual acts. However, this table clearly illustrates the bias towards publishing instances of ritual acts that involve canids, rather than canid remains which received less detailed analysis. This dynamic is most likely a result of the lack of integration between zooarchaeology and classical archaeology as discussed by MacKinnon (“Osteological Research in Classical Archaeology”). Nerissa Russell also notes the problems that surround classical archaeology and zooarchaeological remains. Classical archaeology has had a long tradition of focusing on zooarchaeological evidence that points to sacrifice since it is discussed by ancient texts and represented by artistic representations. Excavations are frequently centered around

public buildings like temples where sacrifice would have likely occurred. This method of study has caused classical archaeologists to often interpret faunal assemblages as a sacrifice or religious rite (Russell 114). This table will help to create a framework to understand the case study that will be described and analyzed at a later point in this paper.

The table also shows that the greater number of archaeological examples available for study is mostly from earlier times (Neolithic through 2nd century B.C.) and that data become sparse into Roman period. This decrease in faunal evidence is not completely clear but could be contributed to the higher prominence of city life as well as grander structures not seen in earlier and rural sites. It is also a problem from the issues discussed previously regarding methods and focus in classical archaeology. Though these instances are wide spread throughout time periods, ritual practices seem to stay relatively similar throughout time. Of the preceding examples, dogs were primarily located in sanctuaries, pits, and water structures like wells. Other instances include walls, sometimes of defense bastions, temples, and funerary locations like tombs or cemeteries. This pattern can be contributed to social practices including religious customs. However, such findings could also be a result of the particular features that have a protective nature, such as an underground well, which would better preserve faunal remains.

Another strong pattern found in these cases is the association of other animals and ceramic objects. The Roman ritual *suovitaurlia* relied upon the sacrifice of mainly rams, bulls, and boars, however several instances have been found with dogs remains (Wilkens 134). The *suovitaurlia* was an important purification rite and the roots of the practice date back to the Chalcolithic period in Italy (Russell 121). There is representation of both domestic and wild fauna. Also included in many cases are objects associated with ritual, such as certain types of ceramics or votives. At the sanctuary of Serra Niedda, a complete dog skeleton was

accompanied by bronze votive statues within a well. Another example of a well at Lavello, contained seven complete dogs along with a ceramic assemblage that contained vases used for ritual (Wilkens 135). It is the presence of other animals as well as ritual ceramics and items that are used to establish these cases as special or ritual in nature.

It is difficult to see a trend regarding age and sex. Newborns through adult dogs were represented in the above examples. At the Romano-British temple complex at Springhead, Kent, twenty separate dogs were found in a ritual shaft. Of the twenty dogs, eight were categorized as puppies and eight were considered adults. These individuals spanned in age from puppies to elderly individuals (Grimm 54). Though this instance is unique, it demonstrates how age is not a clear variable in the above examples. Sex was not identified in most of the above cases, with an exception being at the sanctuary at Vertault which contained 150 complete male skeletons (Ménier 23). A lack of sex identification is probably due to preservation and excavation bias which result in the loss of the baculum, which is used to identify a dog as male.

Another interesting phenomena present in the above chart, is the presence of human remains along with dogs; which often occur at cemeteries and tombs. At Lugnano, twelve burials of puppies, less than six months old, accompany infant and child burials (Wilkens 134). These are most likely examples of the dog acting out its role as a companion in the afterlife.

Finally, it is noteworthy that the above cases are examples of both complete dog skeletons as well as fragmented and disarticulated remains. Mostly, the examples of disarticulated remains are non-ritual. At the wells and pits of Baldock, fragmented skeletons that are in poor condition seem to be non-ritual in nature and represent waste disposal (Clark 16). Also at Levroux, the fragmented remains of dogs, along with other domestic food waste demonstrate the consumption of dogs outside of a ritual context (Buchsenschutz et al., 1988). However, some

ritual examples also demonstrate fragmented as well as articulated canid remains. At the Sanctuary of Monte d'Accoddi, disarticulated dog remains with butchery marks were found in sacrificial pits and at Lugnano, many of the dogs were dismembered (Wilkens 134).

Thirteen of the above cases display butchery or skinning marks and five involve burning. Burning is represented by burnt bones and the presence of ash. For example, at the sanctuary of Torre di Satriano, a complete dog was laid on top of a burnt area of other refuse and votive items (Wilkens 135). While at Meta Sudans, a pit contained burnt bones of dogs and other animals (De Grossi Mazzorin 64). It is almost impossible to tell if butchery marks were for ritual purposes, consumption, or both.

This chart has demonstrated that to understand the role of the dog in each above situation the context must be assessed. Though some of the above examples have similar attributes, such as butchery marks or fragmentation, they represent different actions. For example, though the pits of Baldock and Levroux have dog bones with cut marks, they are completely removed from a ritual context such as a sanctuary or cemetery, and lack the other elements of ritual like ceramics or votives. Thus, these two sites use dogs in a way that is completely different from a site like the Temples of Eraclea, where the sacrificial pits include eight separate deposits all containing dogs with cut marks (Wilkens 134). The religious nature of this site used dogs in a much different way than the domestic pits.

Overall, the above examples of various archaeological findings of dogs in antiquity show that dogs were important to people in various ways. They were essential to ritual acts, like sacrifices, as well as accompanying humans in death. However, sometimes they were considered waste and simply discarded into pits with no underlying meaning.

### **Case Study at Case Nuove, Cinigiano**

Case Nuove is located in Cinigiano, a commune in the Province of Grosseto in Tuscany, Italy, about 200 km north of Rome. The site of Case Nuove is located on a hilltop about 500 m from the only villa in the area. The site is situated in marginal land for crops but is immediately proximate to productive land. It is presumed that Case Nuove might have processed the products of these better crop-growing areas. Several small springs are present in the area but the hill itself lacks surface water. The springs are found in the immediate vicinity in the areas considered to be more productive land. The area around site does have access to groundwater from sandstones which also force water to the surface through fine sandy layers.

Case Nuove is a relatively small site made up of negative features and no habitation structures or debris (see Figure 17). This lack of any true surface features is due to poor stratigraphic preservation from wind erosion and plowing. Case Nuove appears to have been a small-scale agro-processing site for pressing, storing, or processing unknown oil. There appears to be no immediate proximate habitation locations on the site. However, the 5 km radius around the site includes about 40 Late Republican to Early Imperial small-scale sites that could have been places for the workers of the Case Nuove to live. Bowes et. al. suggest that this site was part of a pastorally centered agricultural regime used within patterns of mobility of human occupation (6). An overall picture of the landscape involves specialized sites throughout the area, like Case Nuove, which peasants would have moved to and from at different times of the agricultural year. The Case Nuove press probably served the area during times of harvest in November and the late summer.

The main features at Case Nuove include an oval cut used as a dump for construction debris, a rectangular work surface of *opus signinum* used for a compressive activity like mashing or kneading, a square cut to extract clay, an *opus signinum* lined cistern that collected rainwater, and a rectangular tank used for processing liquids or pressing.

The most significant feature to this study is the presumed well (US 5055) located to the west of the rectangular tank (see Figure 18). The well measured 1 m in diameter and at least 3.17 m deep, but the bottom was never reached due to time restraints and safety concerns. The structure was lined with medium-sized, un-worked marly limestone and mortar. The well was filled with collapsed stones from an aboveground extension, carbon-rich, loose dark soil, and a small assemblage of bones from consumed domestic animals, used as food waste. The fill of the well was considered one context and lacked any stratigraphy, meaning the deposit seems to be from one context with no later material mixed in. Such a deposit suggests a rapid fill event and it is probable that the contents of the well are not evidence for the well's original function. The deposit of faunal materials from this feature derives from an abandonment period at the site around the early 3rd-mid 4th century A.D. (Bowes et al. 5).

The likelihood of US 5055 being a type of well, is bolstered by a comparison with another well from a Roman villa and the cistern at Case Nuove. At the Barcombe Roman Villa in rural Britain, an almost identical well structure was excavated. This well was lined in the same technique as the well from Case Nuove, with large stones laid in a circular construction. This well was excavated to 3 m where the skeleton of a dog was discovered. Rudling does not offer too much detail on this deposit, but believes it to be linked with a termination ritual. The well is highlighted by the discovery of two dog burials outside the eastern wall of the Barcombe



site that seemed to have been discarded in a manner that could also be indicative of offerings from termination rites (Rudling).

The cistern was a small cavity used to collect dregs of water and had been covered by a domical roof composed to collect rainwater and prevent evaporation. The cistern was filled with the collapsed roof materials as well as faunal materials that most likely represent a phase of abandonment at the site. The faunal sample consisted of a small amount of domestic food waste similar to that of US 5055. MacKinnon suggests that the small amount of faunal waste could indicate that the cistern operated as a water source while other parts of the site fell into decay and accumulated rubbish (“Case Nuove” 2). The cistern’s contents are almost identical to that of the well: small assemblages of bones from consumed domestic animals. Both of these features, the well and the cistern, had similar uses throughout the phases of the site. Presumably, both were used for water access in the earliest phases around the 1st century A.D. and then later were used for discard during the abandonment phases around the 3rd-4th centuries A.D.

What sets the well apart from the cistern, is the presence of at least four dogs. In addition, an MNI of 6 hares, under a few months of age, were found within the well. These bones did not have any butchery marks that would suggest consumption as food. A combined total of 25 bones were recovered from domestic food waste of pig, ovicaprid, and domestic fowl each having an MNI of 2. These bones showed clear butchery marks and rodent gnawing. (MacKinnon, “Case Nuove” 6).

### *Materials and Methods*

Careful work was done to analyze the various elements found within the silo at Case Nuove. Measurements were taken according to von den Driesch (1976) on complete and almost complete elements. All measurements are given in millimeters unless otherwise stated. Observations were also noted regarding completeness, symmetry, weathering and erosion, rugose attachments, cultural modifications, pathologies and associations. This data was used to better understand the individuals concerning size, age, and number of individuals to better understand the role of dogs within Casa Nuove.

The excavation was done by one individual and the bones of the assemblage were extracted by hand; no sieving was performed. This is important to note because it makes the sample biased towards larger, more complete elements. The assemblage had been subjected to cleaning with a toothbrush and storage in plastic bags for a year before being handled and analyzed. All bones were cleaned carefully with a toothbrush and water to remove any adhering dirt, and allowed to dry in the open air.

The taphonomic conditions were good and the elements were in decent condition, with most of the bones being complete or almost complete. According to the Behrensmeyer 5 point scale for surface weathering, the weathering stage would be a 1. This stage is characterized by longitudinal cracking parallel to the fiber structure from low moisture (Lyman 355). This could be attributed to the protective nature of the negative features at Case Nuove. Fragmentation was minimal. Those instances of fragmentation were due to soil compression from burial and some damage from handling during excavation. Vertebrae demonstrate mostly broken articular processes. This mostly unfragmented assemblage highlights the condition of the only cranium

recovered. The skull is completely missing the snout and displays a clear fracture. This element suffered from a different taphonomic history that caused such a fragmentation.

The surface condition agents on the elements are common to an archaeological assemblage. This includes staining of black, yellow, and gray colors, black dots and lines, and split line fractures along planes of stress. These types of observations can be attributed to microbes, natural weathering, physical erosion, and root damage. There is no evidence of carnivore ravaging or serious damage from handling during excavation (Lyman, 325).

### *Size*

The estimated shoulder heights were calculated on the basis of the total length of the longbones and can be seen in Table 4 (Harcourt 160). 90% of the measurements were in the range of 537.9-569.7 mm with a mean of 558.8. Compared to modern breeds this would be a medium-sized type, comparable to a modern Labrador (see Figure 19). One individual was approximately 379.8 mm at the withers (Clark 16). This would be similar to a modern Terrier (see Figure 20).

### *Age*

The age-at-death of the dogs was found using two separate estimation methods. Table 2 contains the information obtained using tooth wear and eruption estimates. Each individual element was assigned an age based on either post-cranial epiphyseal data or tooth eruption sequences (Silver 299). Horard-Herbin's method, based on the occlusal surface wear patterns of

the first mandibular molar was used for those particular teeth within the assemblage. This type of analysis was first observed in dog remains from the Late Iron Age site of Levroux, France (98). Of the three molars, from three individuals, that were available for study, two were observed to be in wear stage E (24-36 months) and one was in wear stage F (36-48 months). This method provided significantly older age estimations due to the basis on wear states. However, Silver's method of tooth eruption, which is a minimum estimate, gives much younger estimates because of the lack of wear information. Of the elements that do not contain a first mandibular molar the ages were at least 5-7 months.

The age information based on post-cranial epiphyseal data is listed in Table 3. The oldest possible age according to this is at least 15 months, based on a complete element. The average age estimation is 9.6 months. Thus, the majority of the elements represent mature specimens due to the fusion estimates of epiphyseal surfaces as well as fused vertebral epiphyses. Mature will be defined as having all permanent teeth erupted and epiphyseal surfaces fused, which occurs by at least 15 months.

### *Number of Individuals*

The Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) were calculated and listed in Table 5. The NISP was totaled at 195. By counting for the most abundant non-reproducible element in the sample, an MNI estimate was calculated. Due to collection bias, smaller elements such as metatarsals, metacarpals, and phalanges were did not contribute to these numbers or the calculation of individuals present. The MNI was calculated using the sample of scapulae, pelvises, long bones, and cranial elements and a systematic

approach based on size, physical traits, and fusion of epiphyseal surfaces. All longbones were paired for each element for left and right by size, condition, apparent age, and preservation. From this method it is estimated that the minimum number of individuals in the assemblage is at least 4. The first two individuals (Dog A and Dog B) represent the majority of the assemblage (see Figure 26). These bones include longbones that gave age estimates of at least 15 months old. Furthermore, these two dogs had withers at an average height of 558.8 mm, a medium-sized type. Dog C, is based off of element 51, a femur that is significantly smaller than the rest of the assemblage. This dog was about 379.8 mm at the withers, categorizing it as a small dog, and would have been at least 13 months old. The final dog, Dog D, is characterized by element 27, a tibia that has an unfused proximal epiphyses. This would make this dog the youngest of the assemblage, being no older than 13 months. The estimated withers from this individual was similar to Dog A and B.

### *Pathologies*

The majority of the elements did not reveal any serious pathological issues or diseases that could have resulted in death. There were no instances of osteoarthritis, a degenerative disease usually attributed to older, heavily worked individuals (Brothwell 71). However a few examples of pathologies exist within the assemblage.

Two of the examples are examples of inflammation of the bone. These types of inflammations often occur due to infections that often gain access to the bone through an infection of the overlying tissues (Brothwell 72).

First is an example of osteomyelitis on element 51, a femur (see Figures 23-24). The femur has an inflammation of the bone on the proximal shaft of the caudal side of the element. The feature seems to be extending out of the bone shaft on the caudal side but is slightly separated on the cranial side of the femur. The feature has a smooth, porous texture to it that is significantly different from the actual shaft of the bone. Its attributes are consistent with the inflammation called osteomyelitis which begins in the marrow cavity of the bone. In this type of infection, the periosteum, or the membrane that invests the bone, becomes slightly separated and lifted away from the bone surface. The osteomyelitis on this femur shows a clear separation between the inflammation and the bone, however it is intimately attached. This new feature is caused by an infection in a blood vessel that results in the gradual enlarging area of pus. Once this area is removed from the blood supply it will die and persists as a sequestrum. This elevated, separated area is now part of the periosteum. According to Brothwell, the area will have a woven, porous nature which aligns with the pathology seen in element 51. Overtime, this fibrous area would have turned into dead bone and become hard even though the swelling probably persisted until the individual's death (Brothwell 72).

Some sort of incident where the skin was broken is probably what resulted in this type of inflammation. If the skin was broken, perhaps due to an accidental injury, organisms could enter through the cutaneous tissue and contaminate the bone. Though this injury was most likely painful, it is clear that it did not lead to the individual's death as it had healed and smoothed over. Furthermore, this area corresponds to the backside of the hind legs in the dog and could be attributed to a common accident such as being kicked or fighting.

Second is an example of osteoperiostitis on element 29, a radius (see Figure 25). This feature is a small, raised area that stayed in the outside of the bone, rather than developing in the

marrow cavity. Osteoperiostitis is an inflammation of the bone where the disease starts in the periosteum (Brothwell 68). Osteoperiostitis develops in a similar fashion to osteomyelitis, with pus spreading out from the bone and later hardening into a sequestrum. This type of pathology was most likely the result of some injury that did not result in death.

### *Cultural Modifications*

The individuals found at Case Nuove had no evidence of butchery, cut-marks, or burning that would suggest the consumption of dogs as food or skinning for other resources. There is also no evidence for the consumption of marrow extraction. Most of the limb bones were complete or almost complete or otherwise suffered post-depositional fractures. Furthermore, none of the vertebral column showed any signs of butchery.

### *Summary*

The Case Nuove well yielded at least four different dogs varying in size and age. Dog A and B resemble each other in size and age. They exhibit an approximate size of 558.8 mm at the withers and are labeled medium-sized, similar to a Labrador. Dog A has an instance of osteoperiostitis on its left radius (element 29). This pathology is not serious and would not have led to death, but probably resulted from a minor injury to the foreleg. Both dog A and B are at least 15 months old from fusion and dental eruption data. The evidence for a third dog, dog C, is due to a left femur (element 51) which has a distinctive instance of osteomyelitis. This individual is also the smallest of the assemblage with an approximate withers of 379.8 mm,

qualifying it as a small dog, similar to a modern terrier. Aging data makes this dog at least 13 months old. Dog D is distinct from the assemblage because of a left tibia (element 27) that is the only example of a long bone that has an unfused surface. This information means that dog D can be no older than 13 months old. Dog D is about the same size as dog A and B even though it is younger. One can imagine then four dogs, three of which resemble the size of Labradors and a smaller one similar to a terrier.

### *Osteological and Morphological Comparisons*

The following section compares the previous morphological and osteological data of the Case Nuove dogs with other published data from the same time period and area. Primarily, the comparison will be with De Grossi Mazzorin's comprehensive work on the osteological changes in the dog spanning from the Neolithic to Roman times in Italy. It is important to note that this study finds that size variability greatly increases starting in the Roman period, especially with the appearance of lap-dogs and other small breeds. Also the term early Roman denotes 3rd century B.C. through the 2nd century A.D. and late Roman denotes 3rd through 6th centuries A.D.

Unfortunately, since the Case Nuove assemblage lacks a complete cranium, comparison cranial measurements are not especially illuminating concerning this element. The size of skulls were classified according to length, however since the one skull of the assemblage was not complete. This also prevented comparisons with cephalic and snout width indices.

However, the four mandibles in the assemblage allowed measurements to be taken that evaluated the modifications related to shortening the snout which includes the ratios between length and height. The mandibles were classified according to length. The three mandibles



available for length measurements all fell between 136 and 146 mm classifying them as medium-large. Compared to early Roman (107-151 mm) and late Roman (83-135 mm) dogs, the Case Nuove dogs are on the larger end of the scale and actually larger than any of the other late Roman dogs in this study. The mandibles were compared to the ratio of the height of the mandible behind M1 and the length of the cheektooth row with early and late Roman dogs. The Case Nuove dogs have some of the longest cheektooth rows but are in the middle for height of the mandible behind M1. When the indices were compared with the late Roman data (Table 13), all the Case Nuove dogs were within the same range. These long mandibles mean that this assemblage of dogs was not subject to snout shortening modifications that are evident in other breeds.

The next comparison is regarding limbs and withers height. In the late Roman period, dogs displayed withers height from 261 to 697 mm with an average of 478 mm. This data demonstrates the high variability that existed in this period, and probably resulted from the introduction of small dogs with brachymelic limbs. From Case Nuove, Dogs A, B, and D would be towards the end of that range with withers heights of about 558.8 mm. Withers height was also compared to the slenderness index of the femur (Table 10) to better understand body dimensions. The femurs from dog A have a slenderness index of 7.7 and compared with the withers results in an eumetric body shape, medium size with slender limbs, similar to a whippet. Dog C has an approximate slenderness index of 10 and used with its withers was hypometric, similar to a fox terrier. From comparison to De Grossi Mazzorin's data, the Case Nuove dogs A, B, and D can be said to be among the medium sized dogs of the late Roman period while dog C represents a small sized dog that first started to appear during this era.

## Discussion

The presence of dogs at the Case Nuove site is an example of some of the various roles dogs had in antiquity. The meaning of the four dogs in the well at Case Nuove will now be examined through several different hypotheses following other archaeological examples that have been studied and encountered in this study.

One possible explanation for why these dogs would have been placed or discarded in the well is that they were food remains. This theory could be suggested by the dogs' association with other food remains: domestic sheep and pig elements with butchery marks. As discussed earlier, consuming dogs as food was not an extremely common event but there has been evidence for its occurrence in antiquity. For example, at Levroux, fragmented remains of dog and other domestic animals that bear cut marks were found in refuse pits used for food waste. These pits contained various species and seemed to be a clear example of the consumption of dog meat. However, the almost complete skeletons seems to suggest that the entire dog was initially deposited as one carcass, not subject to butchery. Morris confirms this notion and argues that complete dog skeletons indicate that dogs were not butchered or consumed for meat, since butchery usually involves dismemberment (14). Most importantly, the dogs found in the Case Nuove well do not have any evidence of butchery, skinning, or other processes associated with consumption. The lack of this evidence makes the hypothesis of consumption unsubstantiated not an explanation for the deposit.

Dog remains in the ancient world are most often thought to represent religious or sacrificial rituals. Other studies will be compared to the Case Nuove site to understand if the deposit was ritual in nature. A good example of ritual was discussed by Chilardi at the Duomo

Square in Siracuasa, Sicily. At this site, dog remains were found in a well that was associated with the temple. Ceramic vessels were also found in the well, including an *oinchoe* with a painted scene of the goddess Artemis. The dog bones also had clear cut marks from dismemberment and had evidence of burning (Chilardi 32-26). Other examples of ritual include those connected to the Roman purification ritual *suovitaurlia* involving various wild and domestic fauna, including dogs. An instance of this rite was at the sanctuary of Serra Niedda where a complete dog skeleton was found along with votive statues in a well. Another occasion of the *suovitaurlia*, also occurred at a well at Lavello. This well contained seven complete dogs and a ceramic assemblage that was intended for ritual use (Wilkins 134). From these examples some strong patterns emerge surrounding dogs used for ritual or sacrifice. First is the presence of butchery or cut marks for dismemberment. Second is the close association with ceramics or votives specifically connected to ritual use. Finally, the remains are often placed into wells or votive pits, presumably to connect with chthonic deities or act as a termination ritual. Though the dogs at Case Nuove do share the same location, a well, they are lacking butchery marks and most importantly, any examples of ritual ceramics. The lacks of these two last elements make it difficult to classify the deposit at Case Nuove as ritual act. The presence of ritual ceramics and votives as well as evidence of burning dismemberment is what makes the previous examples special and ritual and nature; without these features Case Nuove cannot be considered a formal ritual act, similar to the other examples from antiquity.

The Case Nuove case does not seem to fit into the attractive theory of ritual act, or the more far-fetched one of consumption. An overview of the work so far has established that four dogs, three of medium-sized and one of smaller stature, were found within a well at a Roman agro-processing site. The dogs were part of a rapid fill event that consisted of various faunal

materials including domesticated and wild animals and probably represents an abandonment period. The dogs are about 13-15 months old, mature but younger individuals. Finally, the dogs exhibited no serious pathologies that would have resulted in death or any other health problems or any signs of trauma or fractures from falling.

One of the most important factors to consider is if the dogs' presence in the well was the result of human action. If humans were not involved, the dogs probably fell into the well accidentally and perished within. However, it seems unlikely that four individual dogs all fell victim to the same accident around the same time without a human noticing it and taking action against it. It seems more likely that the four dogs ended up in the well due to human action.

It is difficult to understand the motives behind getting rid of four young and healthy dogs; in today's world dogs are intensely cared for. The environment of the situation is an important factor in these decisions. Case Nove was a peasant agro-processing site where its inhabitants did not have unlimited resources and only used the site during some parts of the year, harvest in November and the late summer. The site was a place of intermittent occupation and not a permanent living location for those that used it. Furthermore, the dogs are part of a rapid fill event of the well that was occurred during the abandonment of the site. It is likely that the humans responsible for the dogs were about to leave the site and move on through the normal mobility patterns of the year. Perhaps the site had fallen out of use or the family responsible for it had collapsed. Any of these situations could have caused an abandonment of the site and the peasants simply could not take the dogs with them. It might have been easier to simply discard them in a well that was also used as a dump for other food remains and some fragmented ceramics.

Another idea for the discarding animals that has been suggested by James Morris is the practice of population culling. Such a process could be due to undesirable traits, lack of resources, or unwanted animals. Morris argues that the abundance of deposits of complete dogs from well and pit features like at Romano-British sites of Dorchester and Winchester are definitive examples of this practice (15). Though population culling is normally associated with newborn puppies or older animals no longer needed, it is possible that peasants who had limited resources would also implement this practice.

Another explanation for the disposal of four healthy dogs could be a result of free ranging or stray dogs. Modern instances of such populations exist throughout the world in the countryside or rural areas where food can be procured. An ethnographic study that focused on the ecology of these types of dogs in central Italy is the basis for this hypothesis (Boitani 218-241). A nationwide census that was conducted in 1981 revealed that almost every region of Italy had instances of free ranging dog populations. There are many different classes of these dogs including feral, stray, and free ranging. They are based on the amount of human interaction and involvement. For example, stray dogs often maintain a relationship with humans, while feral dogs live completely independently of humans. The study observed a population of about nine free ranging dogs through two years which ended in death. The dogs used the garbage dumps and preyed on livestock for food, much to the dislike of the humans in the area. The humans of the area eventually set out poisonous baits which seven dogs consumed and died. One dog was shot by a farmer and another captured and later killed. This study revealed the negative ideas people have about free ranging dogs and that humans will actively eliminate populations. Interviews with the inhabitants of the region demonstrated other fears of stray and free ranging dogs which included the notion that stray dogs carry disease, cause crop damage, and prey on

livestock. It is quite possible that the dogs in the well at Case Nuove were part of a stray population and had no real owners. Perhaps the inhabitants thought the dogs would negatively impact the activities at the site and decided to put an end to the population. However, it seems somewhat unlikely that during the abandonment of the site, the occupants would have decided to rid the site of stray dogs. It seems more likely that such an event would have happened at the beginning or during occupation when the problems associated with the dogs would have most impacted the residents of Case Nuove. Furthermore, there is a lack of any injuries that would suggest the Case Nuove occupants had been pursuing the dogs before disposing of them. It would seem that in order for humans to take such extreme action on these dogs, they were probably being bothered for them for a period of time prior to physically depositing them in a well. Such action could have included physical actions like kicking or throwing things at them.

The healthy condition of the dogs suggests that these dogs were somewhat cared about, enough to maintain a healthy skeleton and lack any serious injuries. It is very possible that the dogs were in fact free ranging and had no formal owners, yet the occupants of Case Nuove recognized them and allowed them access to food. If this was the case though, it is hard to understand why the owners would simply deposit stray dogs upon abandonment when it would have been possible to let the dogs keep ranging on their own.

A similar example to Case Nuove was at the Romano-British Oakridge well which was constructed in the 1st century A.D. This structure was used as a source of water for the settlement until the 2nd century A.D. until was abandoned as well and became the location for depositing unwanted material. This included site maintenance of bone fragments and destroyed ceramics. The rapid filling events of this well included three dogs and partial fragments of other animals. It has been suggested that the shift in use of this well was the settlement's change in the

center of activities. The well started to become located on the periphery of the settlement and used as a dump. The parallels between this example and Case Nuove are distinct and extremely similar. Both examples were initially used as wells for water but eventually fell into disuse and eventually rapidly filled with unwanted material, including animal remains (14). The Oakridge and Case Nuove Wells seem to be indicators of a wider human behavior in this period to use wells for maintenance of a site.

Though it impossible to completely know the reason the Case Nuove well contained four dogs, it is likely due to an abandonment of the site. As pointed out by Morris, socio-economic choices will always affect the species present at a site. The humans made social choices in what animals were kept, imported, cared for, utilized, and killed (18). Thus, the presence of four healthy dogs in a well help to explain not only the challenges these Roman peasants faced, but also the type of environment they lived in. They were constantly facing a mobile lifestyle that often involved abandoning sites as well as their animals.

Unfortunately, since the Roman Peasant Project is the first of its kind, there is a lack of comparative material that could show other peasant practices. It is possible that this deposit is an example of a lower-class practice trying to emulate an established higher-class practice. Perhaps the peasant status of these inhabitants would not allow them to have access to the necessary ritual votives or other types of ceramics associated with religious acts. This type of aspirational behavior is possible since the Case Nuove deposits are not dissimilar from other accounts of ritual deposits of dogs. However, without other comparative material it is impossible to argue that this was the case at Case Nuove.

It is difficult to imagine a situation where peasants in the Roman countryside would willingly discard four dogs that seemed to pose no threat or problem to their occupation. If they

were indeed free ranging dogs with no formal owner, it would seem easier to just abandon the dogs when the occupants decided to abandon the site. A likely situation was probably a type of termination ritual that was previously examined at the Barcombe Roman Villa in rural Britain. This well was also an abandonment fill which contained a complete dog. There, the excavators interpreted the act of a termination ritual, which was common for this period during an abandonment of a site (Rudling).

### **Conclusion**

This study has provided a thorough background of the domesticated dog's origins and its role in antiquity, highlighted by a case study regarding dogs in Roman peasant life. The archaeological evidence places this domestication event to at least 7,000 B.C., but it most likely occurred earlier in the Near East and southwest Asia. Once domesticated, the dog quickly spread throughout the world and entered various roles as hunters, guards, and companions.

For the Greek and Roman worlds, the dog was important in a wide range of contexts. Authors such as Varro, Columella, Pliny, and Xenophon provided evidence for the use of dogs and the attitudes people had towards the animal in antiquity. Ancient writers focused on breeding and raising dogs and what traits to select for in order to maintain the best hunting and guard dogs. Dogs also frequently appeared in artwork, portrayed in various mediums such as pottery, lamps, and statues that focused on the mythical aspects of the dog as well as their role as hunters, guards, and companions. The attitude the ancients had towards the dog was mostly positive and sometimes dogs received their own burials and dedications or were used as status symbols among the elite.



One of the most interesting aspects of the dog in antiquity was its role in religion and sacrifice. Dogs were associated with chthonic deities and sacrificed to underworld gods and goddesses including Hecate. Dogs were used for purification ceremonies, aversion rites, healing practices, agricultural rituals, and foundation offerings. These actions are accounted for in the literature, as well as physical evidence that exists in the archaeological record. The use of dogs in ritual acts was broad and diverse, but it shows the specialness that was associated with dogs.

This research used the case study at Case Nuove in order to further explain the role of dogs in antiquity. The data of this study revealed that at least four dogs had been deposited in a well at a peasant agro-processing site in Tuscany, Italy. Three of the dogs were similar in size to a modern Labrador, while one of the dogs was smaller, resembling a modern terrier. The four young individuals were healthy and mature and did not display any signs of trauma or other cultural modifications like burning or butchery.

Several hypotheses were offered to explain the presence of the four dogs in the well, but only a few can be accepted. Since there is a lack of butchery, burning, or dismemberment, the deposit definitely does not reflect the consumption of dogs as food. An additional hypothesis was that these dogs were free ranging or stray and might have been bothering the inhabitants of the site. This could have led to the occupants of Case Nuove to take action against the dogs and deposit them in the well. However, the good health and lack of trauma on the dog's skeletons suggests that they were receiving some human care, even if they were not considered pets by the people at the site.

There are two main hypotheses that could be used to explain the deposit at Case Nuove. The more likely idea is that the dogs were discarded during the abandonment of the site by the occupants who used Case Nuove intermittently through the year. The site may have become

useless and so before leaving, the inhabitants tried to clean up the area but discarding food remains, some broken pottery, and four dogs they could no longer care for. This idea may be combined with the practice of population culling which seeks to get rid of individuals because of undesirable traits or a lack of resources. It is probable that the residents of Case Nuove, upon abandonment of the site, decided to deposit the four dogs because they could no longer care for the dogs due to changing lifestyles.

Although the hypothesis that this deposit is not a ritual act has been rejected, it could be an example of aspirational sacrifice. The deposit lacks the typical characteristics of ritual act involving dogs from this period: butchery marks and association with ritual ceramics. However, the deposit of four individual dogs evokes the sense of a social event that had some sort of symbolism. It is possible that this deposit is an example of the inhabitants of Case Nuove mimicking an already established tradition in their own manner. Unfortunately, the evidence and research that currently exists does not allow such comparisons within the Roman peasant world. Though it is difficult to provide a definite explanation of the dogs at Case Nuove, the study demonstrates some of the roles that dogs filled in antiquity.

This specific project has broader contributions to the fields of zooarchaeology and classical archaeology. One of the most significant aspects of this research is the information it provides on aspects of peasant life, a field often overlooked in classical archaeology. Classical archaeology and studies of the Greek and Roman worlds has traditionally used literary and archaeological evidence to mostly highlight the lifestyles of the elite living in urban settings. However, 90% of the population the Roman Empire was not part of the upper class; rather, they lived in the countryside and based their work on agriculture and husbandry. This study highlights the disparity that exists between literary accounts of elite hunters using highly

specialized hunting hounds and the typical dogs that were probably more abundant. If we only rely on these literary accounts, the true role of dogs cannot be completely understood. Though dogs who were subjected to costly breeding and training existed in the ancient world, many dogs, like at Case Nuove, were just simple farm dogs. Furthermore, this project emphasizes the need for more archaeological research of the peasant world in order to offer more comparison studies and information about peasant practices, including ritual acts. Additional excavations of poor sites is difficult, but crucial for obtaining a full picture of life in antiquity.

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## Figures



Figure 1: A Vase Painting of a Catuli Melitaei Dog. *Dogs in Ancient and Modern Greece*. Web. Jan. 2013. <<http://www.mlahanas.de/Greeks/ImagesGreeks/Greeks0276.html>>.



Figure 2: A huntsman with his dog, on black-figure pottery *olpe* (Johns 2008).



Figure 3: A hare-hunt on a pottery libation *phiale* (Johns 2008).



Figure 4: Gold bangle with pierced and engraved decoration depicting hunting scenes (Johns 2008).



Figure 5: Hounds pursuing hares on a pottery jar (Johns 2008).





Figure 6: Pottery drinking cup (rhyton). painted by the White Saccos Painter (Johns 2008).



Figure 7: Cast bronze oil-lamp with silver inlay (Johns 2008).



Figure 8: "Jennings' Dog" (Johns 2008).



Figure 9: Silver bowl with chased ornament in relief (Johns 2008).



Figure 10: Mosaico Di Attenti Al Cane. *Wikimedia Commons*. 27 Apr. 2005. Web. Jan. 2013.  
<[http://commons.wikimedia.org/wiki/File:Dom\\_dramaturga.jpg](http://commons.wikimedia.org/wiki/File:Dom_dramaturga.jpg)>



Figure 11: Copper-alloy coin of Antoninus Pius (Johns 2008).





Figure 12: Marble votive relief to the goddess Hecate (Johns 2008).



Figure 13: The death of Actaeon (Johns 2008).





Figure 14: Cast bronze figure of Cereberus (Johns 2008).



Figure 15: Limestone tombstone (Johns 2008).



Figure 16: The Townley Greyhounds (Johns 2008).

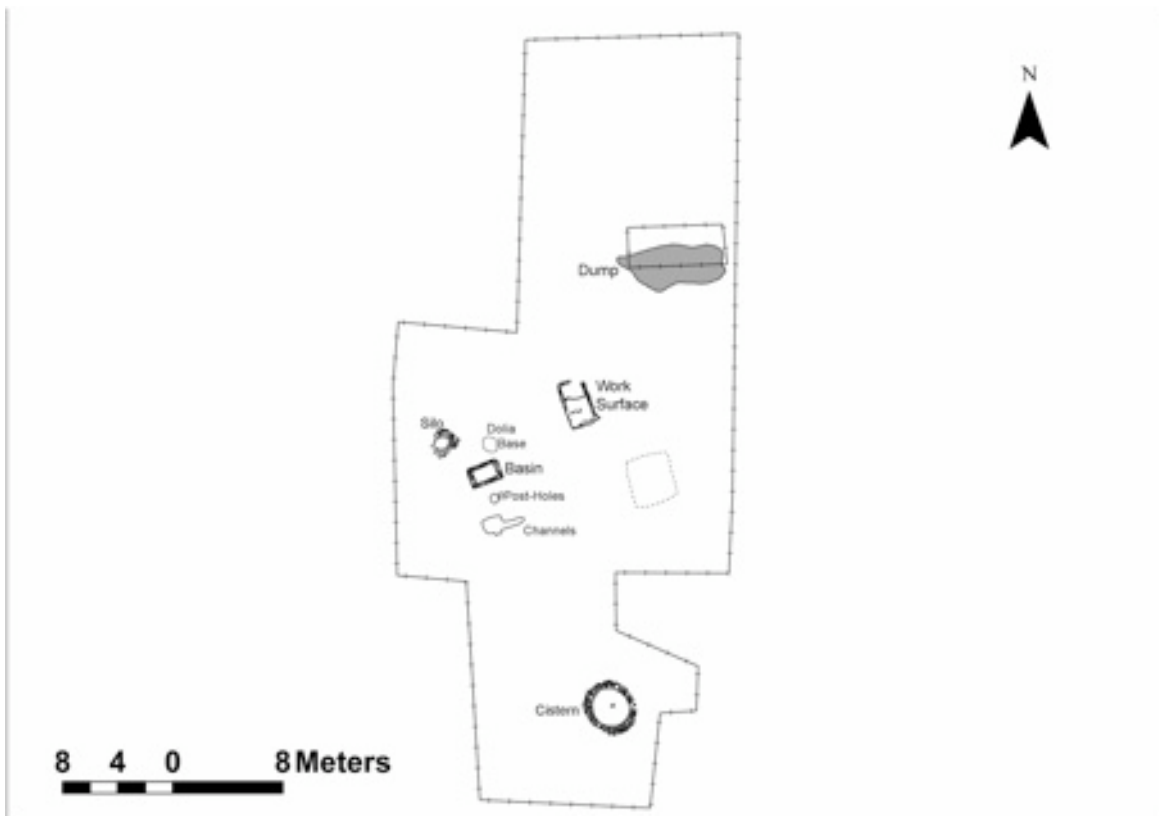


Figure 17: site plan (photo courtesy of *Roman Peasant Project*)



Figure 18: Well (photo courtesy of *Roman Peasant Project*)



Figure 19: Labrador retriever; *Encyclopædia Britannica Online*. Web. 14 Mar. 2013.  
<<http://www.britannica.com/EBchecked/media/10008/Labrador-retriever>>



Figure 20: Terrier (smooth). *Encyclopedia Britannica*. Web. Jan. 2013.  
<<http://www.britannica.com/EBchecked/media/10036/Fox-terrier>>.





Figure 23: Element 51 (photo by Kyle deSandes-Moyer).



Figure 24: Element 51 (photo by Kyle deSandes-Moyer).



Figure 25: Element 29 (photo by Kyle deSandes-Moyer).



Figure 26: Dog A (photo by Kyle deSandes-Moyer).

## Appendix of Data

*Table 2* – Tooth wear and Eruption Data

*Table 3* – Fusion Data

*Table 4* – Wither's Data

*Table 5* – NISP and MNI Data

*Table 6* – Tibia Measurements

*Table 7* – Humerus Measurements

*Table 8* – Radius Measurements

*Table 9* - Ulna Measurements

*Table 10* – Femur Measurements

*Table 11* – Scapula Measurements

*Table 12* – Skull Measurements

*Table 13* – Mandible Measurements

*Table 14* - Presence of ritual canid remains in Italy (some instances from Roman Britain and France)









ements			
	3		4
SD	13.7	Bd	23.8
SD	13.9	Bd	23.8
SD	12.2	Bd	23.9
SD	13.3	Bd	
SD		Bd	
	12.2		21.4
	13.9		23.9
	13.3		23.8







Measurements						
	1	2	3	4		
GL	172	BP 18.2	SD 13.7	Bd 24.5		
GL	169	BP 18.3	SD 13.6	Bd 24.6		
GL	173	BP 18.7	SD 14.4	Bd 24.9		
GL		BP 18.9	SD 14.1	Bd		
	169	18.2	13.6	24.5		
	173	18.9	14.4	24.9		
	171	18.5	13.9	24.7		





Measurements						
	1	2	3	4		
GL	198	DPA	SDO	BPC	21.2	18.7
GL	128.48 (missing distal end)	DPA	SDO	BPC	22.6	
GL	104.68 (only distal end)	DPA	SDO	BPC		
GL	125.94 (only distal)	DPA	SDO	BPC		
					21.2	
					22.6	
					21.9	









Measurements									
	1		2		3		4		5
HS	13.6	SLC	24.2	GLP	29.6	LG	22.3	BG	
HS	12.9	SLC	25.9	GLP	29.3	LG	24.8	BG	
HS	13.9	SLC	24.5	GLP	30.6	LG	26.7	BG	
HS		SLC	26.7	GLP	30.0	LG	26.2	BG	
	12.9		24.2		29.3		22.3		
	13.9		26.7		30.6		26.7		
	13.5		25.3		29.9		25.0		

5
17.4
16.4
19.1
18.8
16.4
19.1
17.9



<b>Table 3</b>	<b>Element Name</b>	<b>Index Number</b>	<b>Symmetry</b>	<b>Age Estimate (months)</b>	<b>Notes</b>	<b>Completeness</b>
	Scapula	16	Right	≥ 6-7 mos.		Complete
	Scapula	17	Right	≥ 6-7 mos.		Complete
	Scapula	18	Left	≥ 6-7 mos.		Complete
	Scapula	19	Left	≥ 6-7 mos.		Distal
	Pelvis	20	Left	≥ 7 mos.; < 5 years		Complete Half
	Pelvis	21	Right	≥ 7 mos. < 5 years		90% half
	Tibia	22	Left	≥ 13 mos		Complete
	Tibia	23	Right	≥ 13 mos		Complete
	Tibia	25	Left	≥ 13 mos		Complete
	Tibia	26	Right	≥ 13 mos		Proximal
	Tibia	27	Left	<13 mos	Proximal end is unfused; no distal unk.	Proximal
	Radius	28	Left	≥ 10 mos		Complete
	Radius	29	Right	≥ 10 mos		Complete
	Radius	30	Left	≥ 10 mos		Complete
	Radius	31	Right	≥ 10 mos		Proximal
	Ulna	32	Right	≥ 6-15 mos		Complete
	Ulna	33	Left	≥ 6-15 mos		Proximal
	Ulna	34	Right	≥ 10 mos		Distal
	Ulna	35	Left	≥ 10 mos		Distal
	Humerus	36	Left	≥ 15 mos		Complete
	Humerus	37	Right	≥ 15 mos		Complete
	Humerus	38	Right	≥ 8-9 mos		Distal
	Humerus	39	Left	≥ 8-9 mos		Distal
	Humerus	40	Right		**Just caporal head	Proximal - Caporal Head





Table 5							
	NISP				MNI		
<b>Total</b>	195			Cranium		3	
				Pelvis		2	
				Mandible		3	
<b>Legitimate Sample</b>	23			Scapula		2	
				Femur		4	
				Humerus		3	
				Tibia		4	
				Ulna		3	
				Radius		3	

































Table 14: Presence of ritual canid remains in Italy (some instances from Roman Britain and France)

Site	Location	Time Period	Context	Description	Modifications	Source
Contineza Cave	Avezzano, Italy	Neolithic	Funerary	-Disarticulated <i>canid</i> remains -Human remains	-butchery -scratching from skinning	Wilkens
Lapis Niger	Rome, Italy	6th. c. B.C.	Roman Sanctuary	-ritual of <i>suovitaurilia</i>	-butchery marks	Wilkens
Satricum	Lazio, Italy	8th-3rd. c. B.C.	Sanctuary to Mater Matuta	-ritual of <i>suovitaurilia</i>	-butchery marks	Prummel
S. Omobone	Rome, Italy	6th. c. B.C.	Sanctuary to Mater Matuta	-less than 2 months old -ritual of <i>suovitaurilia</i>	-butchery marks	Tagliacozzo
Olbia	Sardinia, Italy	2nd c. AD	Sanctuary to Hercules		-butchery marks	Wilkens
Temples of Eraclea	Southern Italy	4th c. B.C.	Sacrificial Pits	-8 deposits with other taxa	-cut marks on 2 of 8 deposits	Wilkens
Sanctuary of Monte d'Accoddi	Sardinia	Chalcolithic (25-18th c. B.C.)	Sacrificial Pits near sanctuary	-disarticulated <i>canid</i> remains with other taxa	-butchery marks	Wilkens

Site	Location	Time Period	Context	Description	Modifications	Source
Porto d' Ascoli	Marche (?)	Neolithic	-large pit in village	-articulated skeletons of 2 dogs -association with unusual objects -other taxa (bovines & ovines)		Wilkens
Le Cerquete-Fianello	near Rome	Chalcolithic	Well	-articulated skeletons of 2 dogs (less than 3 months) -dismembered horse skeleton		Curci and Tagliacozzo
Roca	Puglia, Italy	Middle Bronze Age	Pit deposits	-1 complete dog skeleton near wall -whole vases, head and mandibles of bovine		Wilkens
Rendina 2	Basilicata		-3 underground structures	-1 complete dog skeleton with remains of wild fauna		Wilkens

Site	Location	Time Period	Context	Description	Modifications	Source
Serra Niedda	Sardinia	Late Bronze Age/Early Iron Age	-Stone well at center of sanctuary	-1 complete dog skeleton -bronze votive statues	-no butchery	Wilkens
Genoni-S. Antine	Sardinia	Imperial Roman	well	-7 complete dogs -Adults -Other animals	-1 dog had fractures to front of cranium from weapon	Wilkens
Lavello	Basilicata, Italy	Iron Age	well	-7 complete dogs -Newborns -Other animals -Ceramic assemblage: whole vases, ritual	-butchery marks	Wilkens
Catignano	Abruzzo, Italy	Middle Neolithic	-pit within a domestic structure -village	-dog skull and mandibles		Wilkens
Fontenoce	Abruzzo, Italy	Chalcolithic	-necropolis -pit	-1 dog	-disarticulation of head at atlas vertebra due to clear axe blow to head	Wilkens

Site	Location	Time Period	Context	Description	Modifications	Source
Duomo Square in Siracuasa	Ortigia, Sicily	7th c. B.C.- 4thc. B.C.	-temple	-2 dogs: 6-7 months and adult -ritual ceramics -buried near wall of temple	-butchery marks and burning	Chilardi
Temple A	Pyrgi, Italy	late 4th c. - early 3rd c. B.C.	well of temple	-dog bones and ceramic sherds		Caloi and Palombo
Torre di Satriano	Lucania, Italy		sanctuary	-articulated dog skeleton in pit, positioned at center of a burnt area -votive items		Chilardi
Temple @ Sele River	Italy	late 4th c. B.C.	<i>-bothroi</i>	-filled with ceramics, bones and charcoal -dog skeleton laid on top		Chilardi

Site	Location	Time Period	Context	Description	Modifications	Source
Lugnano	Teverina, Italy	5th. c. B.C.	necropolis	-12 burials of dogs, less than 6 months old, many dismembered -infants and child burials		Chilardi
Porta Mugonia	Rome, Italy		Bastion	-three dogs, in layer of ashes, vessels, and other animal bones	-butchery marks	Chilardi
Meta Sudans	Rome, Italy	506 B.C.	-pit related to rebuilding of the Curiae Veteres sanctuary	-dogs bones and other burned animal bones	-burning and butchery marks	De Grossi Mazzorin
Ariminum	Italy		-foundations of a defence wall in colonial Roman town	-skeletal elements of a small dog		Chilardi
Porta Marina	Paestum, Italy	6th-5th c. B.C.	-pit next bastion -foundation wall	-dog with ceramics		Chilardi

Site	Location	Time Period	Context	Description	Modifications	Source
Baldock	United Kingdom	1st c. - 4th c. AD	-Wells and pit	-fragmented skeletons -poor condition, traumatic injuries, waste disposal	Non-ritual	Clark
Levroux	Indre, France	200 B.C.-50 AD	-domestic refuse pits	-isolated and fragmented (3-5 months) -other domestic food waste animals, ceramics, metal, glass	-butchery marks	Horard-Herbin
Vertault	Cote-d'Or, France	1st c. AD	-Roman sanctuary pits	-150 complete male skeletons -deposited on left side, head facing west	-killed by blow to the cranium	Méniel