dig™

Dogs On the Job

Visit a Dog Catacomb
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A Fox in the Doghouse
Pg. 12

Dogs

In the Beginning They Were Wolves

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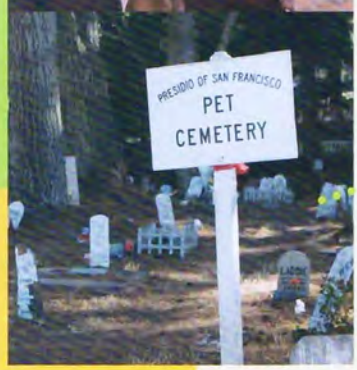

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Hi there!

Don't shy away! True, my face may be a bit scary. And, yes, you probably have heard about my bad behavior with humans. But, just remember—especially the next time you see one of my relatives—your dog friends are my descendants. And that definitely is a great story, and one I want to tell you now. So, come join me as we travel along the genealogy tree.

An index of the articles and information in *DIG*'s 2012 issues is online at: *www.cobblestonepub.com/2012index_dig.html*

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did you know?

—U.S. soldiers in Connecticut's 102nd division smuggled Stubby (of unknown breed) aboard the S.S. *Minnesota.* Once in Europe, Stubby proved himself a great mascot, even pinning down, by the seat of his pants, a German spy. Promoted to sergeant, he was the most decorated dog of World War I.

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Consulting Editors

Lindsey E. Carmichael, Ph.D. in genetics of wolves and arctic foxes in Canada's north; **Petra Cunningham-Smith**, graduate student in anthropology at the University of Florida; **Kitty F. Emery**, curator of environmental archaeology at the Florida Museum of Natural History; **Gordon Grimwade**, historical archaeologist and writer based in North Queensland, Australia; **Angela Murock Hussein**, archaeological consultant and a cataloger for the Mochlos Excavations in East Crete; **Elizabeth J. Olson**, undergraduate honors thesis research on the zooarchaeology and paleodiet of the Maya dog; **Margarete Pruech**, independent scholar for Chinese archaeology and art history; **Elizabeth S. Wing**, researcher and teacher of zooarchaeology at the Florida Museum of Natural History

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EACH OF THE DOGS (A THROUGH H) IS PICTURED AGAIN IN THE ISSUE. CAN YOU FIND THEM ALL—AND NAME EACH BREED?

ANSWERS ARE ON PAGE 31.

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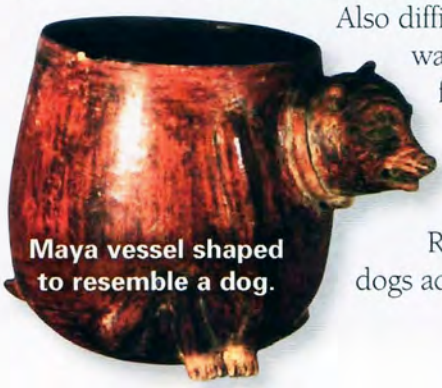
Best in Breed

by Kitty F. Emery, Petra Cunningham-Smith, Elizabeth J. Olson, and Elizabeth S. Wing

Maya myth tells of a yellow dog that guides his owner across the rivers to the land of the dead.

Find out what dog bones and teeth can reveal!

We are zooarchaeologists. We study archaeological animal shells, bones, and teeth to understand the role of ancient dogs and other animals. We spend much of our time identifying different animal species. Identifying a domestic animal breed, however, is much more complicated, since breeds are often defined by features such as fur color or ear shape. These features do not preserve in the archaeological record. Yet, even more difficult than identifying breeds is reconstructing how an animal was used. Also difficult is figuring out why people wanted to focus on certain features and then ensure that these bred true.



Maya vessel shaped to resemble a dog.

'Best Friends'

Research shows that domestic dogs accompanied the first human

Maya modeled dog face used as decoration or stamp

travelers into Mesoamerica some 12,000 or more years ago. Those first dogs were probably much like the Mexican Common Dog, a large, short-haired dog found throughout Mesoamerica today. But, around 2,000 years ago, other breeds started to appear. One was the Mexican hairless dog, or *xoloitzcuintle* in Nahuatl, the language of the ancient Aztecs. Another was the short-legged dog or *techichi*. While it was as long in the body as normal dogs, its legs were so short that some were only half the height of a modern dachshund! A final breed, the short-faced dog, has so far been found only at Maya sites. Most likely, it was first bred in the Yucatan peninsula only a few hundred years ago. The chihuahua—another Nahuatl name and a much more recent breed—may be related to these short-legged and short-faced dogs.

What Bones and Teeth Can 'Say'

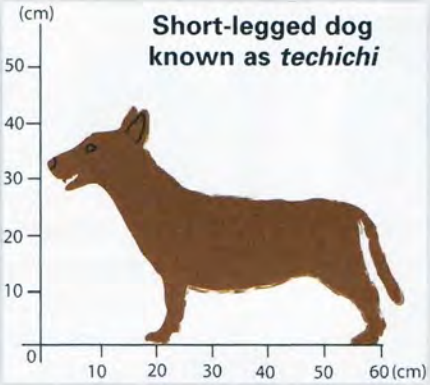
How do we distinguish between the different Mesoamerican breeds? We study their bones and teeth! If we have the bones and teeth of dogs that lived with ancient humans, we can estimate their size using allometry. This means that we use the size of one body element to estimate the full height or weight of an animal. For example, we can measure the length of a dog's premolar (the first molar-like tooth in the jaw) or the width of its jaw bone to determine the dog's size. A short lower jaw might indicate the short face of a Maya dog. Very short leg bones might indicate a *techichi*; and the premolar of the xolo dog is always missing or very small. How do we know that xolos were hairless? We see this characteristic in ancient Mesoamerican art and in the drawings of the Spanish explorers. In addition, the character of missing teeth is linked genetically to hairlessness in dogs.

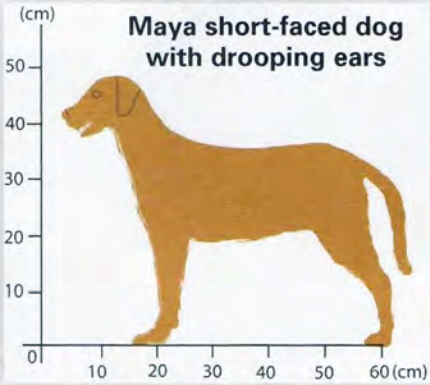
Skin So Soft and Warm

Modern dog breeds are valued by many people as hunters, rescue dogs, or even guide dogs. How do we reconstruct what ancient dog breeds could do and did? Butcher marks on even the earliest dog bones tell us that Mesoamerican dogs were also valued as food. Bones uncovered in wealthy households and ritually important structures tell us that they were symbols of status and often sacrificed during important seasonal

Two archaeological dog skulls used to determine ancient dog breeds

At work measuring a modern dog skeleton





ceremonies. Early Spanish chroniclers recorded that xolo dogs were used to comfort the elderly and ill since the xolo's naked skin makes it warm and soft. They also note that small, fat dogs were considered the best eating dogs for special occasions. Clues can also be gathered by studying which foods the different breeds were given.

We studied the chemical composition in dog bones from archaeological sites across the Maya world. The finds showed that different dog breeds were fed special diets. For example, little dogs—possibly fattened for eating—had mostly corn in their diets. Larger breeds—probably the hunting dogs—had more meat in their diet. The different ratios between carbon and nitrogen isotopes in the dog bones are unique and reflect what they ate. For example, certain ratios of carbon isotopes indicate corn and certain ratios of nitrogen isotopes indicate meat!

Check Out These Special Abilities

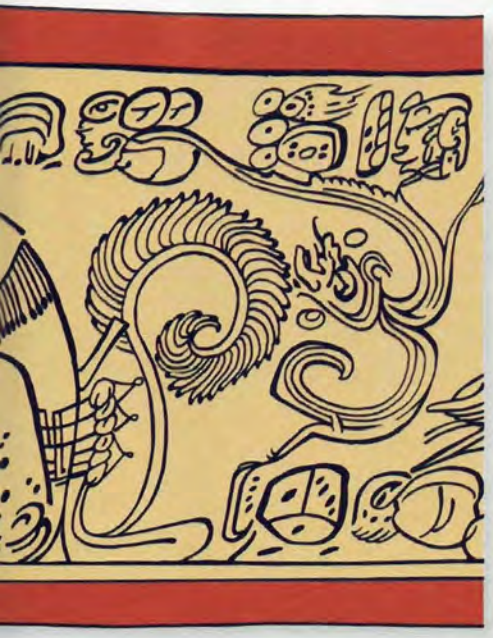
Mesoamerican people have always valued the special abilities of dogs, especially the loyalty of dogs to their masters, even after death. In Mesoamerica and elsewhere, dogs are often found buried with people. One human-dog burial in a cave in Hidalgo, Mexico, is dated to 5,000 years ago. Perhaps pet dogs were sent with their masters into death because they were beloved companions. But maybe their heightened sensitivity to sights, sounds, and smells also gave them a reputation for supernatural abilities that were useful in the afterlife.

Dogs are 30 times more sensitive to odors than we are. Their hearing is also at least four times more acute than ours. Further, although they cannot

Reconstruction of Maya vase design showing dog-headed jaguar carrying a sacrificial bowl with human body parts

Replica of the Colima "dancing dogs" often found accompanying human burials

see the full range of colors that we can, they have better night vision. Dogs are represented in Mesoamerican art and history as guides into the world of death. This association of humans with dogs is repeated many times in burials throughout Mesoamerica. In a study that included more than 40 dogs from a large human



burial site in Sinaloa, Mexico, researchers found that at least two different sizes of dogs traveled with the dead.

And What's With Raccoons?

But the dogs that accompanied humans into death were not always real. Sometimes ceramic representations of dogs were included—see the photos of Colima "dancing" dogs (PAGE 24) and a Chalpa spindle whorl at right. Sometimes, other animals replaced the dogs. In the same burial site at Sinaloa, raccoons were discovered buried with the people and dogs! This find leaves us with these questions: Were people reluctant to sacrifice their beloved pet dogs for burial and sent raccoons instead? Or were the raccoons also treasured by the people who buried their dead there?

Kitty F. Emery, *curator of environmental archaeology at the Florida Museum of Natural History, studies archaeological animal and plant remains to learn about the relationship between people and their landscapes in ancient Mesoamerica.* **Petra Cunningham-Smith** *researches environmental archaeology and zooarchaeology in the land of the Maya.* **Elizabeth J. Olson** *did her undergraduate thesis research on the zooarchaeology and paleodiet of the Maya dog.* **Elizabeth S. Wing** *researched and taught zooarchaeology at the Florida Museum of Natural History.*

Spindle whorl found at Chalpa site with image of the dog known to the Aztecs as *itzculintle*

On the Job

by Jennifer P. Baker

Let Me Help!

I am proud to act on behalf of lost or injured humans and have done this work since 1750! I work whenever disaster strikes to track and find victims of crime, avalanches, earthquakes, floods, and other disasters. In fact, after September 11, 2001, more than 300 search and rescue dogs (SAR) from 19 different states and their handlers offered to help in the recovery efforts at The World Trade Center. We worked with the New York City Police K9 Unit, which deployed all of its German Shepherd dogs for the grueling task of finding victims in the rubble. While police usually prefer German Shepherds, SAR dogs represent a variety of breeds, the most common of which are German Shepherds (I'm one of these. See me in the photo at right), Labrador Retrievers, and Golden Retrievers.

However, this work is not for the light at heart. We train twice-a-week for an entire year before going on our first mission. Our handlers must learn land navigation, map and compass, wilderness survival, and other skills. We continue practicing our skills throughout our lifetime. And—we do this all for free as most of us are volunteers. We do, however, get "paid" with an occasional dog biscuit!

Write to me!

askdr.dig@caruspub.com

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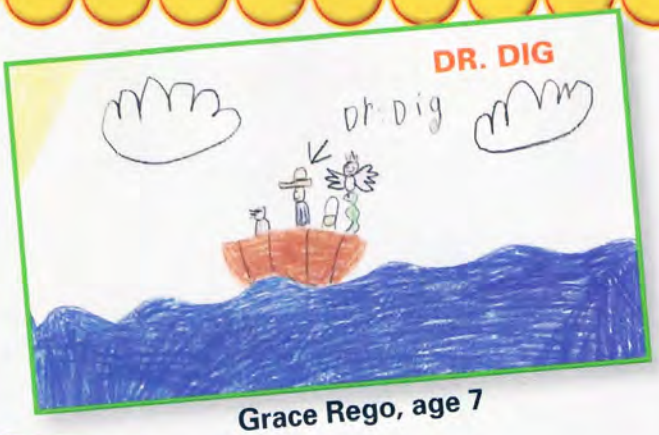

Grace Rego, age 7

Max Miles
Port Townsend, Washington

***DIG* Magazine**

We love DIG at our house, and we include your magazine with our own reading and studies.

In reviewing the 2012–2013 theme list, we saw it included Dogs and Their Domestication and recommend a few titles for fun reading:

1) *Charlie the Ranch Dog* by Ree Drummond, illustrated by Diane deGroat

2) *Dogs*, by Emily Gravett

3) *If You Give a Dog a Donut*, by Laura Nemeroff, illustrated by Felicia Bond

4) *Why Dogs Do That?* by Kim Campbell Thornton, photos by Seth Casteel

—Annalisa Hall

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