A Practical Guide to *In Situ* Dog Remains for the Field Archaeologist

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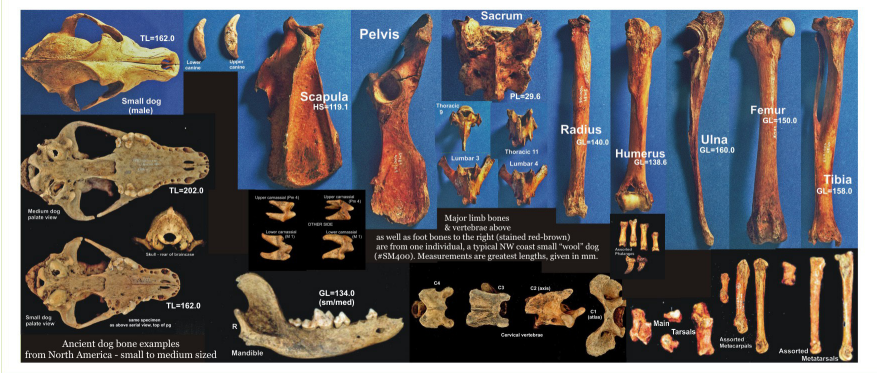
Pocket Guide insert preview below:

Four-panelled outside view above, inside panorama view below.



Preface

This manual is meant to aid field archaeologists in the identification and excavation of *in situ* dog remains (complete and partial dog burials). As a field guide, it is not intended to be a comprehensive reference for the laboratory analysis of dog remains, although it may assist in certain aspects of such investigations. I am assuming readers of this book have at least some training in archaeology and have learned the appropriate protocols for the excavation of human burials.

In theory, the correct approach to dealing with dog burials in the field is simple. If you know how to treat human remains, you know how to treat deliberately interred dogs: go slowly, collect everything, take pictures, and keep detailed records. However, if you don't know what a dog bone looks like, you might not get a chance to do the right thing. Archaeologists are seldom trained to recognize dog bones or to appreciate the potential significance of dog burials. This manual is meant to address these obstacles and frankly, such a reference is long overdue.

I have been working extensively with dog remains for more than 20 years and I have seen firsthand the need for a book like this. I admit, however, that I have not scoured the globe (or even the continent) for the very best specimens to use for illustration. I worked with what was available to me here in Victoria and this has helped give the book a very personal flavor. There is also definitely a North American bias. However, ancient dogs were very similar the world over for most of their history and while sizes may have varied somewhat, the essential features of a dog skeleton are the same everywhere. As I consequence, I believe this manual should go a long way towards filling the "dog burial field reference" gap that has existed for so long.

As a special, field-friendly feature, the spiral-bound book is printed on water-resistant 'Rite in the Rain' paper for extra durability. The use of water-resistant paper has added to the overall cost but I think in the end it is a worthwhile feature that should extend the life of the book considerably. Muddy fingerprints and peanut butter smears will

wipe off these pages and if need be you can work with the book, and make notes in it, *in the pouring rain.*

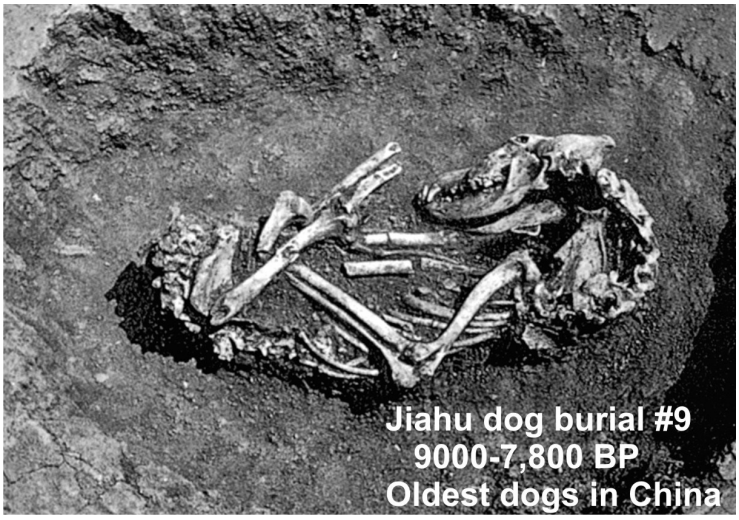
There are two additional components of the book that field archaeologists will value: a quick reference pocket guide insert (also printed on water-resistant paper) that is small enough to tuck into a pocket and a free downloadable file of diagrams for recording which dog skeletal elements are present in a burial. Permission is granted for these diagrams to be photocopied from the book when needed or down-loaded from the Pacific Identifications website (www.pacificid.com) and printed off for inclusion in field notes.

Acknowledgements

Many thanks to Joanne McSporran for taking many of the photos included in this manual and to my colleagues at Pacific ID (Gay Frederick and Becky Wigen) for their intellectual support and assistance. Pacific ID provided the financial funding for this project, including publication. I am very grateful for the assistance of Dody Fugate, Jerome Cybulski and Yuan Jing for sharing information about dog burials and thank their institutions (the Museum of New Mexico, Albuquerque; the Canadian Museum of Civilization, Ottawa; Chinese Academy of Social Science) for granting permission to reproduce burial photos.

Chapter I Introduction

For 12,000-14,000 years, dogs all over the world have been deliberately interred in ritual fashion (Morey 2006; Schwartz 1997). Dog burials have been found throughout North, South and Central America, Greenland, Europe and the Middle East, Siberia and Western Asia, China, Japan, North Africa and Australia. In other words, dogs have been deliberately buried as long as dogs have existed as a distinct species and in every geographic region they came to inhabit (Crockford 2000a; Morey 2006). This pattern suggests that interment of dogs may be a fundamental characteristic of the dog/human relationship.



Archaeologically, complete dog skeletons may represent both solitary and multiple dogs in a single interment. They may be formally laid out (positioned) or represent dogs tossed into pits. Remains of complete adult dogs can be found that were buried with very young puppies or with special grave goods (such as food offerings, beads, pottery, etc.). Ancient dogs in some regions or time periods were buried in abandoned dwellings or in close proximity to important dwelling features such as doorways, hearths or chimneys (Fugate 2001, 2010;

Olsen 2000; Vellanoweth et al. 2008) while in other areas, dogs were simply buried in the household refuse that accumulated around ancient communities. Regardless of how they were interred, dogs were buried by virtually all cultural groups throughout their long history.

For example, the remains of three dogs found buried together at the Koster site in Illinois (dated to ca. 8,500 BP) are the oldest known deliberate dog burials in North America (Morey and Wiant 1992) and some of the oldest known dog remains on the continent. There have been at least eleven equally-old dog interments recovered from the Jiahu site in China from deposits dated to 9,000-7,800 BP (Y. Jing pers. comm., pg.7 and 12, see also Crockford 2005) and a single dog burial found in Japan at the Kamikuroiwa Rockshelter site is about 8,000-8,500 years old (Shigehara and Hongo 2000). Remains of even older deliberately interred dogs have also been found: a single dog burial at Ushki-I in the Russian Far East, for example, is about 10,500 years old (Dikov 1979) and burials 12,000-12,500 years old have been recovered from several locations in Israel (Davis and Valla 1978; Tchernov and Valla 1997).

As often as dogs were deliberately buried on their own, dogs were also included with human interments. Indeed, ancient dogs found buried with humans are more common than many archaeologists realize (Cybulski 1992; Fugate 2001; Olsen 1985; Schwartz 1997). Sometimes only part of a dog, such as a head, was included with a human burial. Dogs were interred with human infants and children, as well as with adults of both sexes, which suggests that dogs were not simply being buried with their owners. Dogs were associated with complex spiritualism in many ancient cultures (Fugate 2010; Morey 2006) and the practice of burying dogs with humans is as old as burying dogs themselves.

For example, the oldest known dog remains found associated with a human burial are from Bonn-Oberkassel in Germany and are about 14,000 years old (see Morey 2006). Another early example comes from a site in Israel (11,000-12,000 years old) that involved a dog or a wolf puppy (too young for the taxonomy to be certain) buried with an elderly person (Davis and Valla 1978). A multiple human/dog interment

containing the remains of two dogs and at least seven people has been dated to ca. 6600 BP and is so far the oldest human/dog burial in North America (Yohe and Pavesic 2000). Dog remains have also been found with human interments in China and some of these are at least 5,000-6,000 years old (Shigehara et al. 1998). There are many human/dog interments that are not quite so old from many locations worldwide, including North America (Fugate 2001; Schwartz 1997) and the Middle East (e.g. Blau and Beech 1999). Clearly, the practice of including dogs or dog remains with human burials was once a global phenomenon that cross-cut cultural boundaries in the same way as burying dogs alone.

It seems that virtually the world over, dog spirits were thought to have special powers. Intriguingly, this concept appears to be as ancient as the dog itself, about 12,000-14,000 years old (see Crockford 2004, 2006) and may well be inherent to the dog/human relationship (Crockford 2000a; Morey 2006). A dog's spiritual essence, released at death, was deemed capable of almost magical feats. Oral histories of several cultures record stories of dog spirits escorting human spirits safely into the next world, providing guidance and protection (Cassleman 2008; Fugate 2010; Schwartz 1997). Therefore, it is not especially hard to understand why dogs are included in human burials more often than any other animal or why they were so often carefully buried themselves. It appears that the powerful spirits of deceased dogs were generally treated with care and respect all over the world (even if the living dogs themselves were not) and on many occasions, people attempted to harness that power for specific purposes, such as safeguarding the newly-released spirit of a deceased person on their journey into the next world. Indeed, it is possible that for most of their history, living dogs did not have specific practical roles but because their spiritual powers were so valuable (and especially strong after death), dogs were tolerated or encouraged to co-habit human settlements rather than being driven off.

Precisely *why* dogs are universally attributed with such powers may never be known but as I have suggested elsewhere (Crockford 2000a; 2006), dogs might be considered to have supernatural abilities if the rapid transformation from wolf to dog (the actual speciation process

we call domestication) took place within a human lifetime (i.e. while people watched), as some evidence suggests.

Regardless, as Darcy Morey (2006) points out, much of what we now know about dog/human relationships has come from the careful analysis of dog burials and human/dog interments. However, too often dog burials go unreported because they have not been recorded properly in the field. I am absolutely certain there are far more dog burials encountered than ever get mentioned in archaeological site reports.

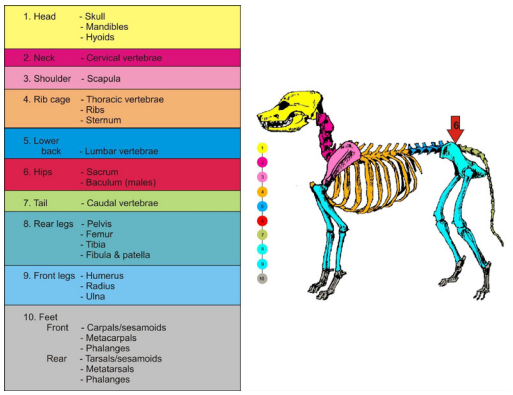
I suspect there are two simple reasons for this failure to record dog burials adequately in the field. First, while archaeologists always get some training in the identification of human bone and are taught proper excavation procedures for human burial remains, they rarely if ever receive instruction in recognizing deliberately interred dogs. It is hard to recognize a dog burial if you do not know what a dog bone looks like. Second, it is unlikely you would treat any dog burial you encountered as something special unless you understood a bit about the history of dogs. You would have to understand that dog burials were significant before you would bother giving them extra time and attention in the field. As a result, many dog interments have gone unreported in field notes, or have been minimally described. I suspect many dogs found interred with human remains have been bagged as "fauna" along with other animals remains, the special relationship of the dog bones to the human burial lost forever.

Almost 10 years ago, I made the following comments regarding the excavation and reporting of dog remains (Crockford 2000a: 303) and I think it is worth repeating here:

> It is obvious that few of the answers to the questions that remain regarding the history of our relationships with dogs will be forthcoming without more consistent and rigorous data collection by both field and laboratory archaeozoologists. I have suggested that treating dog remains with the same care and attention to detail as we do human remains should solve many of the problems: *careful field collection*, with photos or drawings of *in situ* remains; *complete*

reporting of isolated and associated remains, with photos (including: lists of elements recovered; age and sex of individuals; tooth wear and tooth anomalies; injuries and pathologies; shape of the coronoid process; osteometric data); *chronological dating* of actual material; *reporting of data separate and apart from subsistence fauna*. Interpretation will always be problematic, but we can certainly improve on our recording practices for essential raw data of archaeological dog remains.

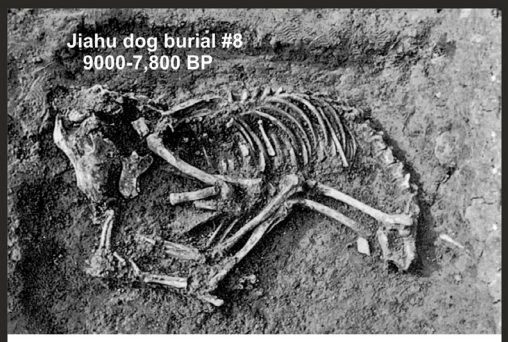
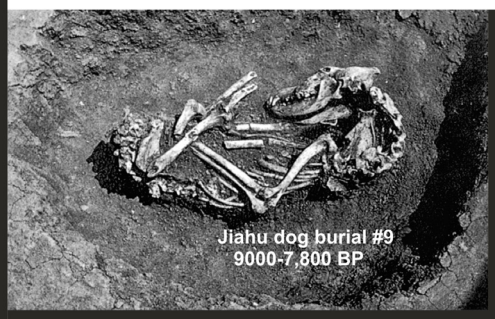
This volume should help address these issues. Chapter II provides some evolutionary and historical background on dogs, including some thoughts on early breed development. Chapter III describes the recommended protocols for dealing with dog burials in the field and provides photos of several real-life examples. Chapter IV is the meat: it presents bone-by-bone illustrations of a modern dog, organized by major body part, according to the diagram below (and reproduced at the front of each section), with some ancient dog examples. Photos of some species elements (both adult and young juvenile, primarily skulls but some postcranial) that might be confused with dog are presented in Chapter V. This is followed in Chapter VI by some photos of modern dog breeds compared to ancient ones. Lastly, some measurements of modern canids and ancient dogs are provided in the Appendix. Thumbnail photos of the Pocket Guide insert are shown on page 6.



Organization of Ch. IV bone photos follows this colour-coded skeleton

Summary: Why archaeologists need to appreciate dog burials

1) A unique spiritual relationship between dogs and humans has existed since the dog became a distinct species 12,000-14,000 years ago: *dogs have a special cultural significance that other animals do not.*
2) Dog burials are a manifestation of the dog/human relationship: *we must have a more complete inventory of dog burials worldwide.*
3) With some exceptions, *dog burials and mixed human/dog burials can be expected in virtually any archaeological site 12,000-14,000 years old or less that has good bone preservation, regardless of locale.*



The oldest dogs found in China were deliberately interred 7,800-9,000 years ago. Eleven dog burials were found at this site (Jiahu). Courtesy Yuan Jing, Chinese Academy of Social Sciences, Beijing (2009).