

Flesh and Bone

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An Introduction to Forensic Anthropology

FOURTH EDITION

Myriam Nafte



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On the cover: The Plague Years (1999)

Photograph by Joel Peter-Witkin (born New York, September 1939)

Joel Peter-Witkin is an internationally renowned photographer whose work over the last several decades has garnered multiple awards, scholarships and prizes alongside at least five feature films highlighting his career. Celebrated in museums and galleries across North America and Europe, Witkin's prolific art addresses themes of life, death, disfigurement, and in his words "profound studies of character." Mr. Witkin has graciously allowed his photograph to grace this 4th edition cover with its inherent message of *mortui vivos docent*—the dead teach the living.

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To the Memory of Lisa Shore

Born November 20, 1987

Died October 22, 1998

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Foreword

I am the mother of a child who died under mysterious circumstances, and as a result have met and worked with a broad spectrum of forensic investigators—coroners, pathologists, toxicologists, pharmacologists, police, and document examiners. The process of piecing together the events that led to this tragedy could never be undertaken by one person. The efforts and energy of many individuals were integral to the investigative process. It is still ongoing.

Very often a lot is already known about a person who died. Forensic examiners will concentrate on learning about the manner of death, the means of death, who committed the deed, why, and what evidence can be gathered to substantiate their findings.

Sometimes however, the investigation has to begin at a more basic level. Who was the deceased? How old was he or she? Was it a he or a she? What can their bodies tell us about how they died? Forensic anthropologists study human skeletal remains to learn as much information as possible about a deceased person. It is only after they conduct their investigations and studies that others can begin to try and answer other questions.

A perpetrator may attempt to hide evidence by interfering with or relocating human remains, leaving the forensic anthropologist with skeletal parts and fragments. Weather, animal life, insects, soil—the natural environment—all contrive to move, erase, and erode vital evidence. At times, forensic anthropology can be likened to trying to assemble an inordinately complicated puzzle, one with many or most of the pieces missing. It is the forensic anthropologist who must try and put those pieces together in a meaningful way—to reconstruct essential elements of humanity out of anatomic and skeletal remains.

When an individual dies in unusual or suspicious circumstances, whether a child in a hospital (like mine) or an unknown person whose remains are found, we owe to their collective memories an obligation to learn as much as we can about the circumstances of their death. We may find our answers through the efforts of forensic analysis, police investigations, coroner's inquests, and even, occasionally, by the per-

severance of the victim's loved ones. These efforts can provide answers to crucial questions, demonstrate ways to avert future tragedies, and help ensure that perpetrators are brought to justice.

Forensic anthropology is an integral part of the meaning—and the method—behind the motto of the Office of the Chief Coroner for Ontario: “We speak for the dead to protect the living.”

I cannot adequately express my gratitude to the author for dedicating this book to my late daughter Lisa, and giving me this opportunity to write some words in her memory.

Sharon Shore
www.lisashore.com
August 2000

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I am forever grateful to the late forensic odontologist Dr. George Burgman, the late skeletal biologist Dr. Shelley Saunders, and the late forensic anthropologist Dr. Clyde Snow for their years of mentorship, support and guidance all of which led to my career in the field of forensics and the first edition of this publication over 20 years ago.

Lastly, I am forever thankful for the love and encouragement from my family: Keren, Ava, and Ze'ev.

About the Author

As a forensic anthropologist, Dr. Myriam Nafte is an active advisor and consultant for criminal casework across North America. She received a Specialized Honors BA in Medical Anthropology from York University, a BEd degree in Science from Brock University, and completed an MA and PhD in Physical Anthropology (Skeletal Biology) at McMaster University. Currently, Nafte is an instructor at McMaster University where she teaches upper-level courses in Death and Dying, Global Health, and Infectious Disease. She continues to research the use of human remains as material culture, documenting the transition from cadavers to objects of power, identity and capital.

Introduction

Forensic anthropology is defined here as the analysis of human skeletal remains within the context of, and as required for, a legal investigation.

Using a variety of methods and techniques, forensic anthropologists examine the skeleton, take extensive measurements, and look for particular bumps and grooves on bone. From this process they attempt to ascertain an individual's sex, approximate age at death, stature and racial origins. They may also determine whether the decedent suffered any trauma or disease. Further examination might possibly reveal the health and diet of the individual, if they were left or right-handed, whether they had given birth, and sometimes even their occupation in life.

In the event that skeletal remains are discovered, providing an analysis of the material may prompt a legal investigation. In one such case, a woman came upon some bone fragments and teeth while gardening. Thinking that she had uncovered her neighbor's dog burial, she quickly reburied them. Overwhelmed with curiosity she dug them up again and upon closer examination suspected they were not canine. The bones and teeth were eventually brought to my lab and identified as human after which a legal investigation followed. The entire backyard was excavated by police to reveal the scattered remains of a teenaged girl who had gone missing ten years earlier.

Conversely, identifying remains may prevent the time and expense of a large-scale investigation. In this case, a crew of construction workers found bones wrapped in rags and newspaper, along with shoes and torn shirts, stuffed in between the walls of an old house. To the astonished crew, it appeared as if a massacre had taken place. They contacted police who brought the strange assortment to my attention.

The assemblage turned out to be a mixture of dog, pig, and horse bones, some crushed and mixed into a form of plaster, and others wrapped in cloth and newspaper filled with sawdust. According to one of the local farmers, the odd mixture was commonly used as insulation in the late 1800s when the house was first built.

The discovery of human remains requires a series of protocols once the police are involved. By law, a human body can never be left where found. All deaths must be

accounted for, and some form of recovery and identification is expected. If the body has decomposed or is skeletonized, recovery and identification are often done by a forensic anthropologist. Any subsequent legal investigation would compel information from a variety of sources, for example from eyewitnesses, suspects, next of kin, and other forensic specialists. Ultimately, the goal is to positively identify the individual and to reconstruct the events surrounding his/her death.

The aim of this book is to give the reader a good background in forensic anthropology by outlining some of the methods, tools, and procedures that best define the discipline. The book is also designed to introduce the layperson to the rapidly growing areas of forensic science by providing a comprehensive look at many of the participants in the field. As an introductory guide, it is thus an appropriate resource for students of anthropology, criminology, law enforcement, and forensic science, as well as anyone with an interest in this subject.

In an effort to engage readers, all technical terms appear in boldfaced type and are discussed within the chapter, while references are provided for those with further interests in a particular area. The photographs, charts, and illustrations are arranged to provide examples of, or reiterate, the subject matter.

All of the chapters begin with their own introduction and are suited for general understanding. Firstly, Chapter One discusses the field of forensic science, and is intended to clarify some of the misconceptions around types of evidence, expert testimony, and the role of law enforcement. The broad field of anthropology is defined in Chapter Two with a brief overview of how a branch of the discipline evolved into an investigative tool in such a short period of time. Since an examination of human remains is integral to forensic anthropology, Chapter Three outlines the processes of death, decomposition and skeletonization, and Chapter Four provides a textual and photographic inventory of the human skeleton. The current methods and techniques of examining the human skeleton to determine factors such as sex, age, race, stature, and evidence of trauma are highlighted in Chapters Five and Six after which Chapter Seven discusses the reconstruction of identity through the process of facial reconstruction, and a detailed description of DNA profiling. Chapter Eight is an updated discussion on the application of forensic anthropology to human rights missions, and lastly, the newly added Chapter Nine provides a short summary of the author's research on the use of human remains as material culture.

There are many graphic photographs depicting human bodies in various stages of decay and which have sustained severe trauma or injury. Out of respect for the victims and their families, the photographs do not reveal the individual's identity, nor are their case histories discussed. The use of such images in this publication comes with an understanding that the dead are to be honored, not only for the opportunity they have provided for our learning but in memory of their individual lives and experiences.