

# **Flesh and Bone**



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## An Introduction to Forensic Anthropology

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THIRD EDITION

**Myriam Nafte**



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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 perseverance 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](http://www.lisashore.com)  
August 2000

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Lastly and most important, I want to thank my husband Keren for the support, guidance and friendship during every stage of this book.



## About the Author

Myriam Nafte is a forensic anthropologist and visual artist trained in anatomy. She received her Honors B.A. in medical anthropology from York University in 1990, followed by a B.Ed. degree in general sciences, and an M.A. in physical anthropology. She later completed a Ph.D. in physical anthropology from McMaster University in 2013. For a number of years, she has taught police workshops and university level courses in skeletal biology, forensic anthropology, and health sciences, while volunteering her services for criminal casework across North America. Myriam's current research focuses on the worldwide traffic of human remains, and the use of the undisposed dead as material culture in contemporary societies. She is coauthor of the book *Crime and Measurement: Methods in Forensic Investigation* [second edition published in 2015] and the editor of, and contributor to, author Brian Dalrymple's *The Skin of Murder Victims: Fingerprints and Other Evidence* (2014).



# 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 parts of the skeleton, take extensive measurements, and look for particular bumps and grooves on bone. From this process they are usually able to ascertain an individual's sex, approximate age at death, stature and racial origins. They could also determine whether individuals suffered any trauma or disease. Further examination, could possibly reveal the health and diet of individuals, whether they were left or right-handed, whether or not they had given birth, and sometimes even their occupation in life.

In the event that skeletal remains are found, providing an analysis of the material may prompt a legal investigation. In one such case, a woman came upon some bone fragments and an assortment of teeth while gardening. Thinking that she had uncovered her neighbor's dog burial, she quickly reburied them. However, she was overwhelmed with curiosity and dug them up again to get a closer look. The bones and teeth were brought to a forensic anthropologist and identified as human. Legal authorities were called and an 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 actually prevent the time and expense of a large-scale legal investigation. In this case a crew of construction workers found bones wrapped in rags and newspaper, along with old 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 back when the house was first built in the late 1800s.

The discovery of human skeletal remains sets off an immediate series of events once the police are involved. By law, a human body can never be left where it was found. All deaths must be accounted for, and some form of recovery and identification must take place. 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 eye-witnesses, 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 and procedures that best define the discipline. It is also designed to introduce readers to the rapidly growing area of forensic science by providing a comprehensive look at many of the participants in the field.

As an introductory guide, the book is an appropriate resource for anthropology and criminology students, individuals in law enforcement, or anyone with an interest in this subject. I avoid technical terminology whenever possible in an effort to keep the reader's attention and interest and to engage those who are working in the field. Technical terms that are used appear in boldfaced type and are explained in the text itself, while references are provided for those with interests in a particular area. The photographs, charts, and illustrations are arranged to complement the text and render it more comprehensible.

All of the chapters begin with their own introduction, and are suited for general understanding. The book follows a logical sequence. Firstly, Chapter One discusses all things forensic, which will hopefully clarify many of the misconceptions that exist regarding dead bodies. The broad field of anthropology is defined in Chapter Two to give one insight as to how a branch of this discipline came to be used as 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 process 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. Chapter Seven discusses the reconstruction of identity through the process of facial reconstruction, and a detailed description of DNA profiling. Lastly, Chapter Eight deals with the modern application of forensic anthropology to human rights missions.

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 published 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 need to be honored, not only for the opportunity they have provided for our learning but also in memory of their individual experiences as human beings.