

BONES NEVER LIE

How Forensics Helps Solve
History's Mysteries



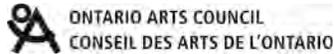
Elizabeth MacLeod

© 2013 Elizabeth MacLeod (text)
Edited by Kathy Lowinger
Designed by Sheryl Shapiro

Annick Press Ltd.

All rights reserved. No part of this work covered by the copyrights hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical—without the prior written permission of the publisher.

We acknowledge the support of the Canada Council for the Arts, the Ontario Arts Council, and the Government of Canada through the Canada Book Fund (CBF) for our publishing activities.



Cataloging in Publication

MacLeod, Elizabeth

Bones never lie : how forensics helps solve history's
mysteries / Elizabeth MacLeod.

Includes bibliographical references and index.

Issued also in electronic formats.

ISBN 978-1-55451-483-0 (bound).—ISBN 978-1-55451-482-3 (pbk.)

1. Forensic anthropology—Juvenile literature. 2. Forensic
sciences—Juvenile literature. I. Title.

GN69.8.M33 2013

j614'.17

C2012-905702-9

Distributed in Canada by:

Firefly Books Ltd.

66 Leek Crescent

Richmond Hill, ON L4B 1H1

Published in the U.S.A. by Annick Press (U.S.) Ltd.

Distributed in the U.S.A. by:

Firefly Books (U.S.) Inc.

P.O. Box 1338

Ellicott Station

Buffalo, NY 14205

Printed in China

Visit us at: www.annickpress.com

*With much love and admiration for
Frieda, a great author and friend
E.M.*

Contents

Acknowledgments /iv

Forensics: The Key to History's Mysteries /1

Royals Time Line /3

Forensics Time Line /4



Terror in the Jungle: How Did an Entire Maya Royal Family Die? /6

Crime-Solvers' Arsenal: Archaeology

Deadly Exile: Was Emperor Napoleon Bonaparte Poisoned? /22

Crime-Solvers' Arsenal: Autopsy



Identity Unknown: Who Was the Man in the Iron Mask? /40

Crime-Solvers' Arsenal: Deductive Reasoning

Murder, Accident, or Suicide? The Puzzling Death of Thailand's King Rama VIII /60

Crime-Solvers' Arsenal: The Crime Scene

Russian Riddle: Did Grand Duchess Anastasia Survive a Royal Massacre? /78

Crime-Solvers' Arsenal: Establishing Identity

Mysterious Egyptian Ending: How Did King Tut Die? /100

Crime-Solvers' Arsenal: Medical Imagery (CT Scans)

Lost Prince: What Was the Fate of Marie-Antoinette's Son? /122

Crime-Solvers' Arsenal: DNA

Glossary /146

Main Sources /149

Further Reading /151

Image Credits /153

Index /154



Forensics: The Key to History's Mysteries

Some of history's most intriguing mysteries have finally been solved!

How did King Tut die?

Was Napoleon poisoned?

Did Princess Anastasia escape the terrible fate suffered by the rest of her family?

How have these and other mysteries (some hundreds and even thousands of years old) at last been resolved after so much time? With forensics, which is a scientific way of examining physical evidence. Forensics as a crime-solving technique includes fingerprinting, DNA analysis, bone analysis, autopsies, blood tests, X-rays, and many other high-tech tests. Forensics can often show exactly how people whose ends were suspicious died, even when there's hardly anything left to examine.

People love a mystery, and when it involves royalty and all the power, money, and prestige that go with it, the stakes are raised and the story becomes irresistible. You might think there wouldn't be much mystery about people as famous and powerful as monarchs and their families; isn't everything they do public and well documented?

But paparazzi, security cameras, and investigative reporting are modern developments. The written accounts that were the main source of information in the past were sometimes recorded inaccurately in the first place, changed, or misinterpreted. And many records have gone missing over the years, either accidentally or deliberately.





Mysteries surrounding royals stay alive as eras pass. Solving these mysteries can become national obsessions. Sometimes it's because people simply want a happy ending for everyone involved. Maybe they like knowing that being royal is no protection from crime or danger. Or maybe they just like solving mysteries.

Much of the fascination with mysteries is in the challenge of figuring out how to solve them—and some mysteries have been shrouded in conjecture and lack of hard evidence for so long that all kinds of stories and theories have developed, making it more and more difficult to separate truth from fiction.

But today we don't have to rely on guesswork or worry so much about how to weed out rumors and baseless theories. Thanks to the accurate and precise crime-solving techniques of forensics, many very old mysteries involving some of history's most famous people have been solved recently. Other royal riddles, however, stubbornly remain unsolved. As forensics techniques become more advanced, even these lingering mysteries may be unraveled ... but only time will tell. For now, prepare to step into a world of majesty, mystery, and discovery.

Royals Time Line

ROYAL	BIRTH	DEATH
King Tut	ca 1341	1323 BCE
Kan Maax	ca 760	800
Louis XIII	1601	1643
Louis XIV	1638	1715
The Man in the Iron Mask	?	1703
Louis XVI	1754	1793
Napoleon Bonaparte	1769	1821
Louis XVII	1785	1795
Grand Duchess Anastasia	1901	1918
King Rama VIII	1925	1946
King Rama IX	1927	



Forensics Time Line

- ca 540 BCE First recorded archaeological dig. Led by Nabonidus, King of Babylon.
- 44 BCE First forensic autopsy. Showed that although Julius Caesar was stabbed by many knives, it was the second knife wound that killed him.
- ca 1450 Archaeology. Developed as a science when Italian researchers became interested in ancient Greece.
- 1670 Single-lens microscope. Invented by Dutch scientist Antonie van Leeuwenhoek. It would become an important tool in analyzing evidence.
- 1812 World's first detective force. Sûreté Nationale is set up in Paris, France.
- 1835 Matching the bullet to the gun. Henry Goddard, a British police officer, studies markings on bullets and shows how a bullet can be matched to the gun that fired it.
- 1836 Arsenic test. Created by chemist James Marsh of Britain to detect very small amounts of arsenic in human tissue or body fluid.
- 1843 Mug shots. Belgian police begin taking photos (called mug shots) of criminals.
- 1846 Advanced autopsy technique. Rudolf Virchow, a professor in Germany, develops the specific, standardized autopsy technique still in use today.
- 1849 Forensic dental records. An American murder victim, reduced to bone fragments and a set of false teeth, is positively identified by a dentist, resulting in the conviction of the murderer.
- 1861 Hair as evidence. Virchow studies the importance of hair as evidence in a crime. He becomes known as the father of modern pathology.
- 1887 Deductive reasoning. *A Study in Scarlet*, the first book featuring Sherlock Holmes, is published. Holmes is known for using deductive reasoning (the process of drawing conclusions based on carefully analyzing available evidence) to solve crimes and is the world's most popular fictional detective.

- 1892 **Fingerprinting.** Police officer Juan Vucetich of Argentina makes the first criminal identification using fingerprints.
- 1890s **Crime scene forensics.** Detectives begin gathering and analyzing crime scene evidence—such as fingerprints, hair, and items left behind—to solve crimes. Many years later, police would also be able to scientifically examine bloodstains and ballistics, DNA, and more.
- 1894 **Handwriting analysis.** A famous French court case involves deciding whether or not the accused army captain wrote a memo giving away his country's military secrets.
- 1895 **X-rays.** German physicist Wilhelm Conrad Röntgen discovers X-rays. They can be used to determine cause of death or to see inside objects without harming them.
- 1901 **Blood type identification.** Austrian-American biologist Karl Landsteiner helps devise a blood-typing test. Forensic scientists use the test to identify bloodstains at crime scenes.
- 1901 **Human vs. animal blood test.** Paul Uhlenhuth, a German scientist, creates a test to distinguish human blood from animal blood at crime scenes.
- 1910 **First crime lab in the world.** Opened in Lyons, France, by police detective Edmond Locard. He devises a basic principle of forensic science: "Every contact leaves a trace." Locard becomes known as the French Sherlock Holmes. He also shows how microscopes can reveal details that can be used to solve crimes.
- 1913 **Identifying bullets.** French forensics professor Victor Balthazard describes how bullet markings make each bullet unique.
- 1933 **Dermal nitrate test.** Developed in Mexico. Identifies gunshot residue on skin.
- 1974 **Computed tomography (CT) scan.** First used to give doctors detailed images of the internal organs of living patients. Later used to give similar information about crime victims.
- 1984 **DNA analysis.** British geneticist Alec Jeffreys is the first to use deoxyribonucleic acid (DNA) analysis to solve crimes.