

REVISED SECOND EDITION

HIDDEN EVIDENCE

50 true crimes and
how forensic science
helped solve them

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DAVID OWEN



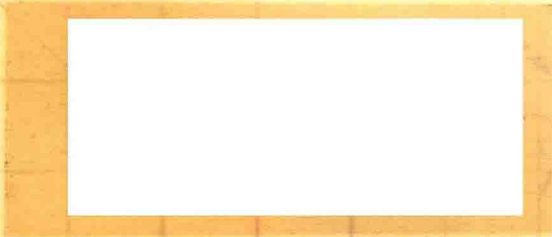
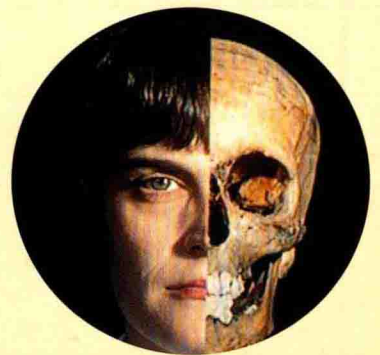
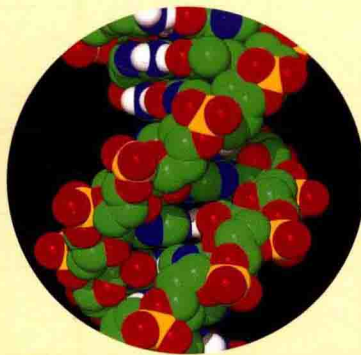
HIDDEN

EVIDENCE

THE STORY OF FORENSIC SCIENCE

AND HOW IT HELPED TO SOLVE

50 OF THE WORLD'S TOUGHEST CRIMES



DAVID OWEN

FIREFLY BOOKS



A FIREFLY BOOK

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CONTENTS

Foreword	6
Preface	8
The Trail of the Ripper...	9

SECTION ONE

INTRODUCTION

CHAPTER 1	In the Beginning	12
CHAPTER 2	On the Scene	28
CHAPTER 3	A Question of Identity	46

SECTION TWO

WEAPONS OF THE CRIMINAL

CHAPTER 4	Pure Poison	64
CHAPTER 5	Knives and Blunt Instruments	82
CHAPTER 6	Strangulation and Suffocation	90
CHAPTER 7	Drowning and Burning	102
CHAPTER 8	The Smoking Gun	112
CHAPTER 9	Fire and Explosives	132

SECTION THREE

UNMASKING THE CRIMINAL

CHAPTER 10	Frauds and Forgeries	148
CHAPTER 11	Fingerprints and Footprints	162
CHAPTER 12	Trace Elements	180
CHAPTER 13	Blood	194
CHAPTER 14	DNA: The Ultimate Identifier?	206
CHAPTER 15	The Future for Forensic Science	226

Glossary 282

Index 284



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EVIDENCE



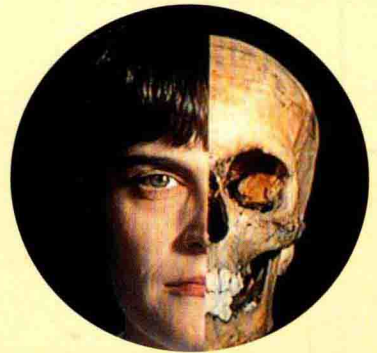
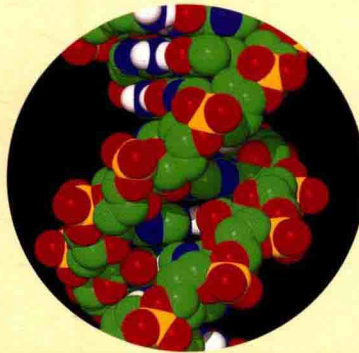
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CHAPTER 14	DNA: The Ultimate Identifier?	206
CHAPTER 15	The Future for Forensic Science	226

Glossary 282

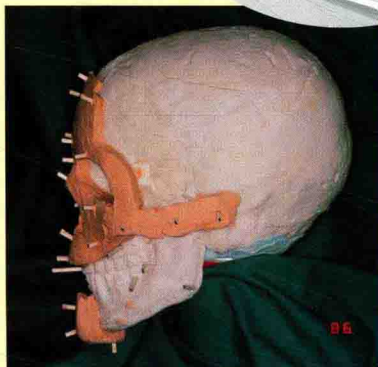
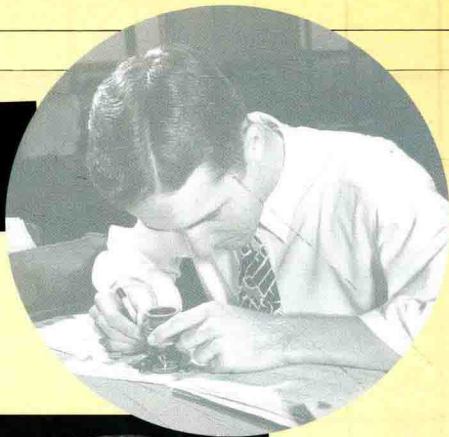
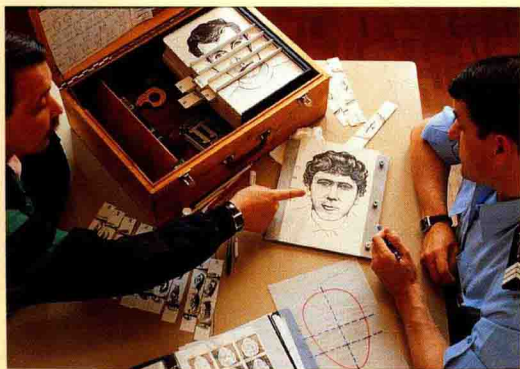
Index 284



FOREWORD

Hidden Evidence is a fascinating book. It focuses on the development and evolution of the techniques and technologies used in forensic criminal investigation, from the recognition of the uniqueness of fingerprints some 3,000 years ago in ancient China, to the present-day use of computerized DNA analysis. Each forensic subject is illustrated with synoptic examples using famous or infamous cases that will be familiar, to some degree, to most readers. Some of the cases cited occurred here in Los Angeles, where I have lived and worked since 1952. As I was reading, I reminisced about the days when I was involved in the investigations surrounding the deaths of Marilyn Monroe, Robert F. Kennedy, Sharon Tate, Janis Joplin, William Holden, Natalie Wood, John Belushi, and other lesser-known cases. The history of the development of the technology and advances in criminal investigation is very interesting for me, because in my 50-year forensic career, I have witnessed many of the remarkable technological changes outlined in this book.

Chapter 1 begins with a reference to a T'ang Dynasty Magistrate, Ti Jen-Chieh, who



is reputed to have used forensic evidence and logic to solve crimes. Using the facts of various cases as illustrations, the chapter goes on to describe the early history of forensic investigations and I found the discussions of some of these now-discarded theories fascinating, such as the identification of criminal types by facial structure. Subsequent chapters are well-organized into selected topics covering investigation, individual identification, weapons, knives, and blunt instruments, strangulation and suffocation, and more. Each chapter starts with an informative discussion of the various elements of specific investigative techniques, followed by factual presentation of illustrative cases, with a minimum of speculative analysis and conclusions.

Author David Owen has written for investigative-type publications since graduating from the University of Manchester, England, in 1961 with a B.Sc. in Engineering. His writing experience includes



TV scripts based on fact, articles for engineering magazines, and an encyclopedia of technology and air-accident investigation.

The book is strictly factual, and easy reading for those who would like to have an introduction to the various fields of the forensic sciences, and for readers interested in the true facts of old and more current, well-known cases, some of which have been fictionalized in earlier publications.

I found, among the cases cited, some where I was either a part of the investigation or have heard and seen the scientific presentations at professional meetings, such as the annual meetings of the American Academy of Forensic Sciences (AAFS) and/or the National Association of Medical Examiners (NAME). I recall that at an AAFS meeting one year, I was a part of the speaker panel of the unique, annual scientific session



called "The Last Word Society," where well-recognized forensic scientists are asked to review and give definitive thoughts or conclusions on well-known, unsolved cases. I was assigned the case of "Jack the Ripper" to analyze. The author's introduction is entitled "The Trail of the Ripper" and covers this famous, and still unsolved, case.

I like *Hidden Evidence* very much for its factual, non-controversial presentation of the events with only the key issues cited. The book will be of interest to first-time readers of forensic topics, as well as long-time forensic investigators who want a synoptic, historical overview of their profession.

For those interested in a quick reference to past cases with key scientific issues addressed, this is the book: an excellent mini-encyclopedia of widely discussed, high-profile cases.

I would recommend this book to every library as a quick reference to the forensic science professions. It may be of interest to science-oriented students, history majors, journalists (particularly those covering crime), and criminal investigators. *Hidden Evidence* offers testimony to the centuries of progress in forensic medicine and sciences, and criminal investigation.

Thomas T. Noguchi, M.D.

Chief Medical Examiner-Coroner (ret),
and USC Professor Emeritus of
Forensic Pathology

March 2000
Los Angeles, California

PREFACE

“WHENEVER YOU HAVE EXCLUDED THE IMPOSSIBLE, WHATEVER REMAINS, HOWEVER IMPROBABLE, MUST BE THE TRUTH.”

Sir Arthur Conan Doyle, *The Adventures of Sherlock Holmes; The Adventure of Beryl Coronet*.

Stated differently, “The truth is out there.” That assertion, made at the opening of each episode of the television series, *The X Files*, is the premise upon which forensic investigation is based. The truth is present and discoverable at every crime scene. To find it, according to Sherlock Holmes, one must follow the rules of scientific inquiry, gathering, observing, and testing data, then formulating, modifying, and rejecting hypotheses, until only one remains.

Polymerase chain reaction; neutron activation; microspectrophotometry; gas chromatography; gel electrophoresis; mass spectrometry; scanning electron microscopy. Today’s techniques are far different from those employed by Sir Arthur Conan Doyle’s fictional sleuth but the goals of police science remain the same.

The men who murdered Tsar Nicholas II and his family and servants thought their crime would never be discovered, but bones eventually came to light. Theodore Bundy was convicted by his own bitemark. DNA brought Colin Pitchfork’s killing spree to an end. For the “Nightstalker,” Richard Ramirez, it was a fingerprint, for Clifford Irving, a voiceprint.

Modern crime and medical examiner/coroner laboratories use a vast array of scientific specialties to exonerate the innocent and send murderers, rapists, burglars, and swindlers to jail. Bones tell stories of identity, trauma, and postmortem mutilation. The forensic anthropologist reads them. The odontologist analyzes teeth and the marks they make. People constantly exchange bits of themselves with their surroundings. The trace-evidence specialist studies hairs, fibers, pollen, paint, soil, and glass to determine who was present at a crime scene. The ballistics expert looks at tools and weapons. The biologist analyzes blood, saliva, and semen to tie perpetrators to victims or locations.

When people ask how I ended up in forensic anthropology I tell them it was accidental. In graduate school I studied archaeology and human skeletal biology, intending to focus on the ancient dead. But early in my career, when I did the occasional coroner case, I experienced an excitement I hadn’t felt with prehistoric bones. The cases that came to me in body bags, or transported by sheriff’s deputies, had immediacy lacking in my archaeological work. I found forensic investigation both fascinating and rewarding. I could use my science to solve a puzzle. I could provide a family with closure. I could contribute to law enforcement’s effort to take criminals off the streets.

That is the purpose of forensic science, and that is what this book describes. *Hidden Evidence* takes you from crime scene to crime lab, and demonstrates how science has been used to untangle lies, both modern and historic. Commingled bones in a septic tank. Fibers in a car trunk. Paint chips on a mangled bike. Fingerprints on a bloody bat. By the use of sophisticated technology, expanded databases, and complex global linking, scientists now probe these bits and pieces, this hidden evidence, to exclude the impossible, find the truth, and sort the guilty from the innocent.

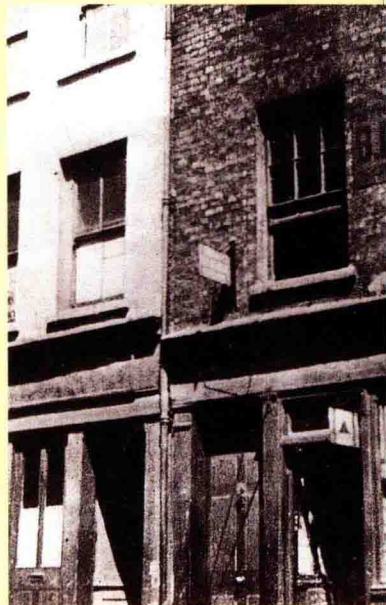
Dr. Kathy Reichs, Forensic Anthropologist

THE TRAIL OF THE RIPPER...

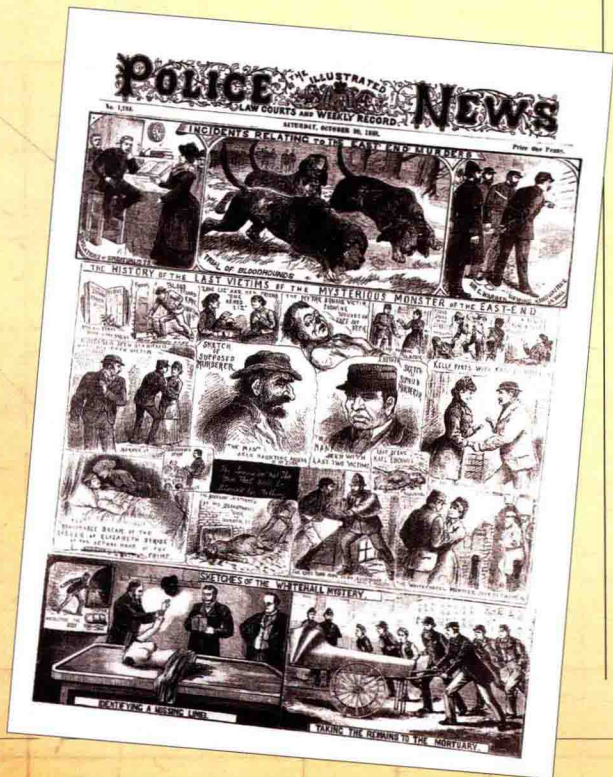
In the late 1880s, the East End of London was a grim and dangerous place to be. Grinding poverty trapped many hundreds of people in the dark and depressing jumble of the Whitechapel slums. Criminals of all kinds, from robbers and pickpockets to burglars and prostitutes, plied their trades among the poorly-lit streets, and violence was an unfortunate fact of everyday life.

One morning in November, 1888, a year in which two women had already been murdered in the area, an assistant to a local landlord called at 13 Miller's Court to collect rent owed by a twenty-four-year-old prostitute named Mary Jane Kelly. He knocked on the door and, since there was no

RIGHT 13 Miller's Court, Whitechapel, London 1888 where the mutilated body of the hapless Mary Jane Kelly was found.



BELOW Illustrated periodicals of the time fed the public appetite for details of the Ripper's murders.



response, peered through a broken window pane. To his horror he saw a human corpse, cut to pieces; the floor of the room was awash with blood.

When the police arrived, they found that the woman's body had been dismembered: both breasts removed, the liver placed between the victim's feet and one hand placed in her stomach. The fireplace contained ashes of burned women's clothing.

Witnesses reported having seen the victim earlier with a man who had a mustache and was wearing a type of bowler hat known as a Derby. Two witnesses claimed they had heard a cry of "Oh, murder!" coming from the corner of Miller's Court just before four in the morning, and a neighbor had heard footsteps leaving the area some two hours later.



This horrific killing was the last in the series of extraordinarily savage attacks known to have been carried out by a shadowy figure nicknamed Jack the Ripper. Other brutal murders were committed during the late 1880s: some of the victims were women and some had had their throats cut, but differences in the way in which the fatal injuries had been inflicted made it unlikely that the Ripper had been involved.

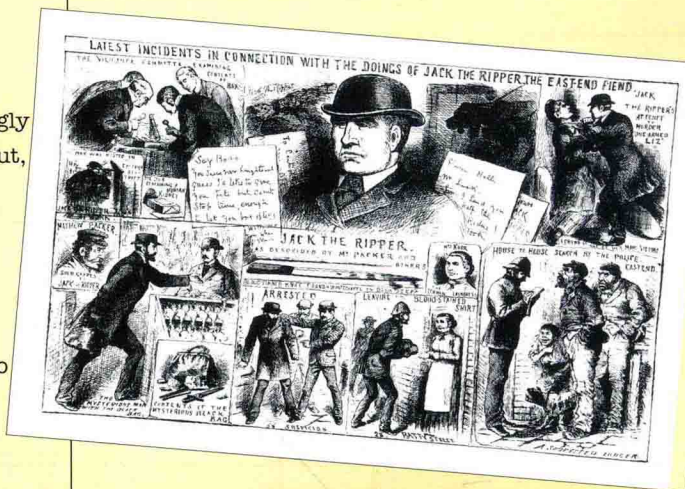
In spite of the witness accounts and a tantalizing stock of forensic evidence, no credible suspect was identified in the Ripper case, though contemporary speculation was understandably rife. Over a century later, theories regarding the motives and identity of this most notorious of killers are still being published by writers, researchers, and police officers. Suspects were traced and charged in connection with the later attacks, but no one with a real, provable connection to the genuine Ripper murders was ever found.

The Ripper case illustrates both the potential and the limitations of forensic science. During the twentieth century, forensic evidence has played an increasingly important role in a wide range of cases but, just as with this greatest and best-known of unsolved crimes, forensic evidence cannot find and convict the criminal unaided. It does, however, provide an additional weapon in the detective's armory; a weapon that can be used in two principal ways. It can offer clues to help detectives track down the criminal and it can help detectives prove a suspect was present at the crime scene or committed a particular act of violence. In some cases, it can even do both. By using powerful weapons such as fingerprinting and ballistics, DNA comparison, and trace-



TOP AND ABOVE RIGHT Mary Jane Kelly and Annie Chapman—both victims of the Ripper.

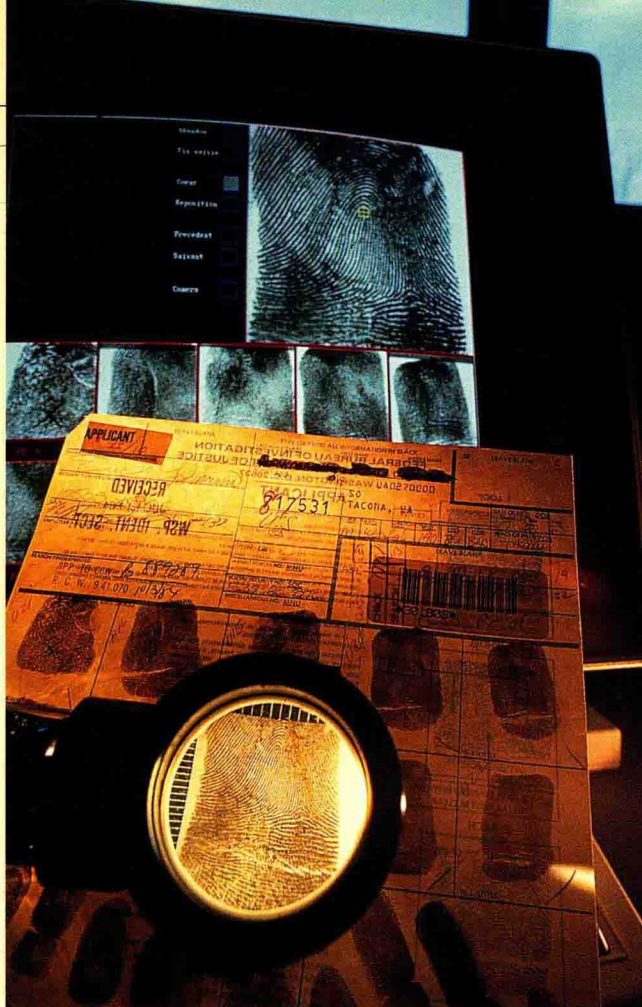
BELOW *The Illustrated Police News* highlighted every development.



element analysis, the modern forensic scientist can uncover facts, expose crucial details, and confirm or discount theories with a certainty that would have startled previous generations. But, spectacular as the

results may be, the power of this exacting science can be fully brought to bear only once a recognizable target has been identified. Finding that target depends on solid and reliable police work.

Forensic science is not infallible. Even now there are cases where the evidence it isolates seems confusing or incomplete, or is open to more than one interpretation. Sometimes expert opinion differs over the significance of a particular finding. In other cases, techniques used to locate the tiniest traces of a particular substance have become so sensitive that a trifling weakness in laboratory hygiene or the simplest human error can lead to mistaken conclusions or inadvertent tampering with the evidence. As forensic science becomes more powerful, it must be handled with greater and more scrupulous care, if the guilty are to be convicted and the innocent exonerated.



RIGHT Fingerprints provided the first reliable proof of a person's presence at the scene of a crime and are still vital today.

BELOW Taking samples from blood-stained cloth to determine through DNA fingerprinting whether the blood was the victim's or the attacker's.

