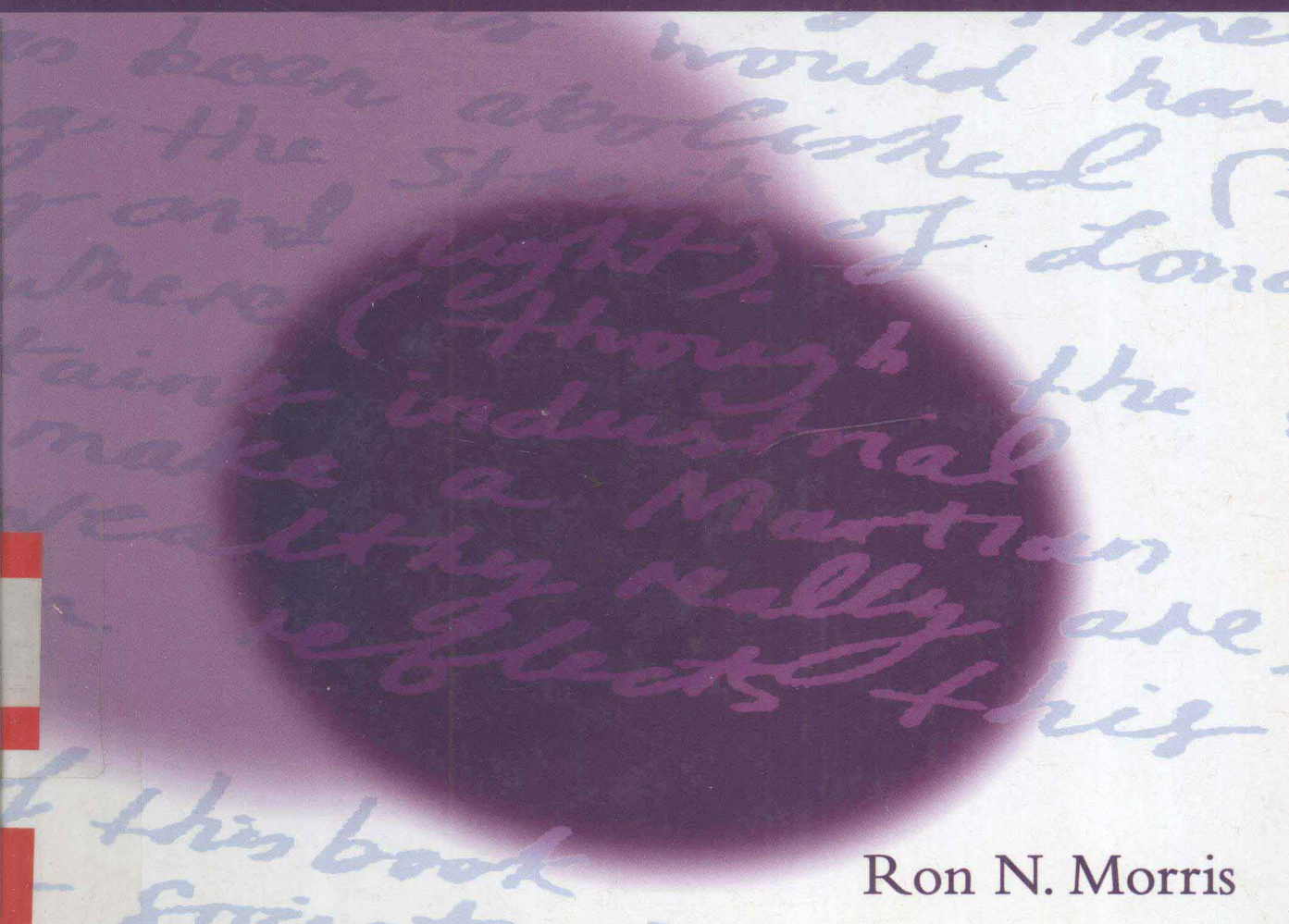




Forensic Handwriting Identification

Fundamental concepts and principles



Ron N. Morris

FORENSIC HANDWRITING IDENTIFICATION

FUNDAMENTAL CONCEPTS AND PRINCIPLES

Ron Morris



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FORENSIC HANDWRITING IDENTIFICATION

Other related books

Questioned Documents: A Lawyer's Handbook

Jay Levinson

FOREWORD

Since the beginning of time, man has relied upon markings and some sort of writings to either send messages or to record history. With the evolution of time, the sophistication of man and growing technology, such markings have obviously evolved as well. They are now manuscripts, negotiable instruments and legal documents, to name a few. Their purpose and use has also reached unimaginable proportions. Unfortunately, so has the unlawful use of such instruments. Hence, the need for forensic analysis of questioned documents and a good understanding of handwriting.

Modern man has learned to write and use characters as a general rule in the classroom. Today, children begin to write and are taught writing styles based on the language, culture or standards of learning set forth by their particular school system or teacher. This becomes a very relevant factor when one studies and understands how a person writes or even attempts to disguise their writing. The individuality in one's writing takes on such characteristics as noted in detail in the chapters to come. Often, these patterns are the very element which allows a trained eye to detect and or understand their writer.

As we embark on the new millennium, the cyber/computer age is also revealing to us an even greater vulnerability to the unlawful use of data and documents. In many cases this can be identified as electronic-type fingerprints.

Criminologists, forensic document examiners, investigators, and others have long been tasked to use inscriptions and markings as clues to identify their writers. It may be to validate the authenticity of the marks and signature, or to identify sources, location or an actual person. Furthermore in many cases, as our book will reference, it may be to identify "the criminal".

Questioned Document Examiners have become, over the past decade, the integral keys to successful investigations, which involve the need for such forensics. The courts, generally speaking, do not solely rely on the testimony of the investigator. They require additional scientific evidence to support the charges or claims against those accused.

This text is designed to be a working handbook for professionals in and related to this field of expertise. It is a very basic guideline to assist you in successful evidence gathering and to afford a better understanding of the relevance and importance of such scientific evidence.

JERRY IANNACCI
Catoctin Consultants
February 2000

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I have learned that when entering upon a project such as writing a book there are a lot of people involved who assist the author in many ways. I would therefore like to acknowledge some of them, and their contributions, at this time. First, my wife who never had to look far for me because I was sitting in front of the computer instead of doing the many things on her “honey do” list. Second, my publisher Mr Nick Fallon who kept the pressure on, in a nice way, and helped to provide the extra motivation I needed to get the book written. Third, all of the FDEs with whom I worked over the years who had a profound influence on me during my training period, who contributed of their time and talents to help me learn how to be an FDE. They will always be remembered for their effort and patience. Fourth, Ms Sharon Barber for her invaluable services as editor of this work before I turned it over to the publisher. The greatest compliment I received from her was when she said she understood what I was writing and learned a lot that she never knew before. Thank you, Sharon, for all your help; without you I could not have done it. Fifth, Mr Jerry Iannacci, with whom I have written another book, for his contribution to this book by writing the foreword and guide to use. He has been a good friend for many years, a professional investigator, and is a respected criminologist who runs his own company, Catocin Consultants, LLC located in Frederick, Maryland.

Thank you all for your assistance. Without your help and encouragement, this project would have been impossible.

ABOUT THE AUTHOR

Ron Morris is President of Ronald N. Morris & Associates, Inc. Certified by the United States Secret Service Forensic Sciences Division and the American Board of Forensic Document Examiners, he has worked as an examiner of questioned documents for the Metropolitan Police Department, based in Washington DC, the United States Secret Service and the US Treasury Department.

Educated at George Mason University, Fairfax VA, he has attended and instructed training courses at the US Treasury Department, the US Secret Service, Georgetown University, and numerous professional organizations such as the American Academy of Forensic Sciences, The American Academy of Questioned Document Examiners, the International Association of Credit Card Investigators, the Mid-Atlantic Association of Forensic Sciences, the Southwestern Association of Document Examiners etc.

Ron Morris is a member of the American Academy of Forensic Sciences, The International Association of Financial Crime Investigators, formerly the International Association of Credit Card Investigators, the Mid-Atlantic Association of Forensic Scientists and the Canadian Society of Forensic Sciences.

He is co-author of the book *Access Device Fraud and Related Financial Crimes* (CRC Press, Boca Raton, 1999) and numerous reports and technical papers on a wide range of questioned document topics. He has testified as an expert witness in numerous federal, state, local and military courts – along with courts in the District of Columbia.

ABOUT THE CONTRIBUTING AUTHOR

Jerry Iannacci is a criminologist and is the current CEO of Catoctin Consultants in Frederick, MD. He is a recently published expert on financial crimes and access devices (*Access Device Fraud and Related Financial Crimes*, CRC Press, Boca Raton, 1999). His background includes being a law enforcement officer in Long Island, NY; Director of Safety and Security Operations in Washington, DC, for a major hotel corporation; and an executive with a major financial corporation, serving as its Deputy Director for Investigations. In this last capacity, he was assigned to the US Secret Service Task Force in Washington DC, to help organize one of the world's most successful cooperatives between the government, public, and private sectors receiving the Attorney General's award for their successes.

Iannacci has been president of the International Association of Financial Crimes Investigators (Mid-Atlantic States), in addition to being a member of the organization's National Board of Directors and serving as the Training and Education Chairperson. He was a special advisor to the Pentagon during the Gulf War and has lectured internationally on Task Force Cooperatives on the importance of joining forces in fighting crime and related problems.

A few years ago, Iannacci decided to apply his investigative experience to look at criminal activity and organized groups that involve youth. When he joined Catoctin Consultants, his goal was to help the Maryland State Police introduce before the Maryland General Assembly a bill on Child pornography and Internet-related crimes, which did happen in 1998. Then, in 1999, he was requested by the Maryland Senate to help pass the Fraud Identity Takeover Act.

INTRODUCTION

Many books and technical papers have been written on the subject of questioned documents. Some are better than others when dealing with the many, and varied, topics a Forensic Document Examiner has to deal with. Most of the books have sections on handwriting and hand printing identification and the material covered is usually general. Recently, there have been several books written that deal just with handwriting identification; however, none of them deal with the topic of exactly how a person learns to write, how their fingers, hand, wrist, arm, etc. move and the resultant pen direction when writing. There have been many technical papers written that are based on studies of letterform patterns and their frequency of occurrence in writings of particular groups, for example a study just completed on "The Frequency of Round Handwriting in Edmonton, Alberta Schools" (Crane 1999: 169-74).

A lot of technical papers have been written about the elements of disguise writing, the effect of physical and emotional illness on handwriting, and the effect of transitory factors such as disguise writing under the influence of drugs and alcohol, writing with the unaccustomed hand, etc. Writing is a dynamic activity. The writer's fingers, hand, wrist, arm, etc. are in motion. There is variation in movements based on normal variation and the many influences that can affect how a person writes.

The purpose of this book is to review the basic concepts that affect a person's writing. Because writing is a dynamic activity, the Forensic Document Examiner (FDE) must understand how the writer holds his pen, positions the paper, moves his fingers, hand, wrist, etc. when examining a writing. He should be able to visualize the movements of the writer, evaluate pen direction, and determine the significance of factors, such as relative relationships between the various parts of a writing, the influence of writing on paper having and not having a pre-drawn baseline, etc. He should also know the importance of systems of writing and how they influence the writer during his formative years and even as a graphically mature writer.

This book covers many of these subjects. It has numerous illustrations that are explained in some detail, but it also encourages the reader to study them and find other important factors that affected or influenced the writer. The book is

practical in approach and is designed for the investigator who must rely on handwriting comparison to assist him in his investigations, the attorney who retains the services of an FDE or has to use his services during a trial. It can also be used by trainees of the profession to further understand the basic principles behind the movement of the writer's hand and how the dynamics of the act of writing influence the resultant pattern left on the paper by the writer.

Pattern recognition is the beginning process of handwriting identification. It has long been known that just because two or more writings look alike and have the same patterns, it is not necessarily true that they are by the same writer. The FDE must go beyond simple pattern recognition to accurately determine that the writings are of common authorship. This book and the principles and examples covered in it should be of great assistance to the reader in learning how to properly evaluate the patterns, qualities, and features of a writing and how to begin attaching significance to them for identification purposes.

It takes years of specialized training to become an FDE. Anyone who thinks they can pick up a book like this or a more complete text on questioned documents, read it and become an FDE has the wrong impression of the profession. This book is designed as an aid to be used by professionals who want to learn more about the subject of handwriting, not to make them an FDE. This topic is covered in more detail later in the book. The author hopes that the reader will profit from this book and be better able to understand the concepts behind handwriting and hand printing identification.

REFERENCES

- Crane, A. (1999) "The Frequency of Round Handwriting in Edmonton, Alberta Schools," *The Canadian Society of Forensic Science Journal*, 32(4), December.

GUIDE TO USE

The text of this book can be of significant assistance to several professionals who have the need to understand handwriting and questioned documents. Here are some examples and facts to consider.

LAW ENFORCEMENT INVESTIGATOR

Whether you are a police officer, constable or special agent, the relevance of this topic is paramount to any successful document-associated examination. Forensic Questioned Document Examination, although not a new field, is relatively new to most. Properly used, it can also help in the preliminary stages of an investigation. It may also help to confirm investigative intuition.

Let's review it in a quite practical way. What follows is a short case study.

You are assigned to investigate a credit card or access device fraud case. You interview your complainant and gather all the required information. It is determined during the course of your investigation that the following facts exist:

- 1 The victim whose credit card was used unlawfully is a respected law-abiding member of the community – a medical doctor by profession. The doctor noticed several thousand dollars in charges on his monthly statement from his Visa credit card that were not familiar to him. He disputed the charges with his bank and assures he did not make these purchases.
- 2 He has always been in possession of his credit card and had never left it behind anywhere. The only persons who were aware of his card number were his wife and office manager who paid his bills. It was determined that the wife would have no motive and that no outside sources were a factor or suspect in the matter.
- 3 All the credit card vouchers totaling over \$12,000 were obtained for evidence, from local merchants. The handwriting appeared disguised but could have been written by the same writer.
- 4 What would be the investigator's course of action? How would his/her knowledge of handwriting further the investigation?

The Answer

Your new understanding of handwriting, complemented by your basic investigative skills, should lead you to this most appropriate course of action: which is to obtain handwriting samples from the office manager. This would include

original copies of her office work and properly gathered handwriting specimens which could be used to match against the questioned handwriting.

This would help the Forensics Questioned Documents Examiner establish pattern base lines from original writings as well as to be able to do the comparative study with your newly obtained specimens. Provide the examiner with specimen writings of the victim as well as the suspects.¹

¹ For those who read this text, another key factor is that you should be able to provide the examiner with exactly what they need, not withstanding the ability to interpret their findings.

This method or scientific approach to your investigation lends far more credibility to your case than would an interrogation (hoping for a confession). Ideally, when you have some hard evidence in your hands, depending on your venue, you may only need to have the examiner's opinion and related cause to indict or arrest your suspect.

PROSECUTOR/SOLICITOR/ATTORNEY

Regardless of whether or not you are the defense attorney or prosecutor, it is extremely relevant to understanding the findings of the examiner/investigator. It is very difficult, if not impossible, to successfully prosecute or defend such a matter without a complete understanding of such expert opinions.

- 1 How were the specimens obtained?
- 2 What is the expertise of the examiner?
- 3 What comparative studies were completed to identify the writer?
- 4 How many specimens were taken and what are the results of all suspect forensics?
- 5 What requests did the investigator make to the examiner?
- 6 How were the steps used in the comparative study and what factors were considered by the examiner?

TRAINEE FORENSIC QUESTIONED DOCUMENT EXAMINER

This book fulfils several functions for the trainee:

- 1 It is a working text for study and reference.
- 2 It helps the examiner understand the philosophy of writing.
- 3 It emphasizes the need for understanding systems and qualities of forensics.
- 4 It helps to ascertain how to determine significant features of handwriting.
- 5 It mandates the importance of writing clear and concise reports.

Use the science of Forensic Questioned Document Examination to your best advantage. As I mentioned earlier, it affords credibility and may reduce the risk of your making costly mistakes. Use the book as a reference text after your initial course of instruction. Most of the methodology will remain consistent and will prove to be an excellent guideline for your handwriting and questioned document related cases.

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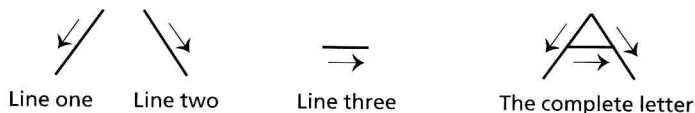
THE PHYSIOLOGY OF WRITING

HANDWRITING RULES OF EXECUTION

“Handwriting” is not handwriting. Most people write with their hand, but there are a substantial number who are not able to use their hand so they write with their foot, mouth, etc. Writing is actually a brain function and the hand – foot, mouth, etc. – is merely a device with which to carry out instructions sent to it by the brain. For the purpose of this book, it is assumed that handwriting refers to hand writing. However, virtually all of the concepts presented and discussed throughout this book also apply to writing done with the foot, mouth, etc.

The individual develops writing skills in the following manner:

- The infant learns to clasp round objects like a finger or stick with his hand by grasping the object in the hollow of his hand and wrapping his fingers around the object to keep it in place.
- The preschooler learns to make random movements and markings with his arm while holding a crayon. Some children hold the crayon in their hands in the way that a toddler holds onto a finger, and are begin to hold it with their fingers like an adult holds a pen. Regardless of how the child holds the crayon he leaves a record of his random movements by a series of lines on the paper.
- The youngster learns to color within the preprinted lines of the picture while manipulating the crayon with finger, wrist, and arm movements.
- The young student learns to make individual letters by drawing them one line at a time. For example, the “A.”



The arrows on the completed letter show the stroke direction called for by the copybook to make the letter.

A pre-printed set of model letter forms, referred to as a writing system or copybook is placed before the student and he is asked to draw the individual letters by following the instructions of his teacher and book.

- The older student learns to connect individual letters while maintaining legibility. This is not an easy task for him to accomplish. In part, the success of this exercise depends upon the handwriting system, his attention to detail, and many hours of practice to master the task. Over time the act of writing individual letters and connecting strokes becomes habitual, and the writer finds his writing speed increasing while retaining legibility.
- The more skillful writer develops a series of combined finger, wrist, and arm movements usually associated with “graphic maturity” (Saudek 1978: 381). At this level, he establishes a pattern of movements required to make letter shapes, connecting strokes, and other writing movements repeatedly. Wilson R. Harrison refers to this concept as the writer’s “master pattern” (Harrison 1966: 306). The writer does not produce a letter or group of letters exactly the same way every time he writes it. There is some normal variation expected in every writer’s writing. A more in-depth discussion of this concept will be covered later in the book.

Writing skill and “graphic maturity” are concepts that will also be covered later in more detail. For the purposes of this discussion, experience teaches that the majority, if not all, of the physiological principles of handwriting apply to all writers, regardless of the writing system learned.

Robert Saudek studied the writing act, how people learned to write, how they actually wrote, made letters, connected them together, etc. Even though he studied the writing of the people of England, where he lived, he also studied the writing of people from Europe. He had writers perform a series of experiments from which he derived a set of principles that are as valid today as they were then. If anything, experience has shown that his principles are scientifically sound and most important of all, reproducible (Poulin 1963).

The following material is a paraphrased/edited version of some of the principles from his book, *Experiments with Handwriting* (Saudek 1978). Paraphrased/edited material from other topics in his work will also be included in this book. When the paraphrased/edited material is used in this book, there is a reference to the source of the original work at the end of each chapter.

SEVEN PHYSIOLOGICAL PRINCIPLES OF HANDWRITING (Saudek 1978: 96–98)

Handwriting is usually done with the fingers and hand, connected to the writer’s body by his arm. Like the fingers and hand, the wrist and arm contain many nerves and muscles that can affect the writer before, during, and after the act of writing. Therefore, it is necessary to examine the physiological principles of writing as summarized in the following seven principles.