THE STUDY OF LATENT FINGERPRINTS

A Science

By

WENDELL W. CLEMENTS

Principal Forensic Print Specialist
Los Angeles Police Department
Fellow, The Fingerprint Society
Graduate, Institute of Applied Science
Former Member, Identification Bureau
Beverly Hills Police Department

Interesting and provocative, this book begins with the history of fingerprints, what they are and how they are made; where they are found and how latent prints are developed, lifted, compared, and identified. The author examines friction skin, how it is formed and how to recognize its patterns on the phalanx. At crime scenes, readers meet the victims, pursue their tormentors, and explore the serious business of tracking down criminals by their fingerprints. A chapter on court presentation of latent print evidence allows readers to sit in the witness stand with the field investigator and the comparison expert as they testify to their findings and conclusions.

THE STUDY OF LATENT FINGERPRINTS

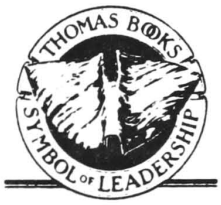
THE STUDY OF LATENT FINGERPRINTS

A Science

By

WENDELL W. CLEMENTS

Principal Forensic Print Specialist
Los Angeles Police Department
Fellow, The Fingerprint Society
Graduate, Institute of Applied Science
Former Member, Identification Bureau
Beverly Hills Police Department



CHARLES C THOMAS • PUBLISHER
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER
2600 South First Street
Springfield, Illinois 62794-9265

ISBN 0-398-05290-5

Library of Congress Catalog Card Number: 86-14527

With THOMAS BOOKS *careful attention is given to all details of manufacturing and design. It is the Publisher's desire to present books that are satisfactory as to their physical qualities and artistic possibilities and appropriate for their particular use.* THOMAS BOOKS *will be true to those laws of quality that assure a good name and good will.*

Printed in the United States of America
Q-R-3

Library of Congress Cataloging in Publication Data

Clements, Wendell W.
The study of latent fingerprints.

Includes index.
1. Fingerprints. 2. Crime and criminals--Identification. I. Title
HV6074.C55 1987 363.2'58 86-14527
ISBN 0-398-05290-5

PREFACE

THIS BOOK deals directly with latent (finger) print identification. I do not intend to offer more than a taste of the history of fingerprints, so if the reader hungers for more information as to who did what and when, he must look elsewhere.

We shall begin with the history of fingerprints, what they are and how they are made; where they are found and how latent prints are developed, lifted, compared and identified. We shall go to crime scenes, where you will have the opportunity to meet the victims and pursue their tormentors, and explore the serious business of tracking down criminals by using evidence they so generously provide, their fingerprints.

The reader may notice the lack of illustrations and, perhaps, even wonder about it. The reason I have chosen to keep illustrations to a bare minimum is due to my experience as an instructor in a latent print course I conducted for five years at Los Angeles Valley College.

The only textbook available, authored by a well-known and respected person in this field, was not of my choosing, and I found the illustrations to be inadequate. When I decided to write my own book on this extremely interesting subject, I decided not to include any more illustrations than necessary, and to allow each instructor to be creative in the use of whatever illustrations he or she preferred.

An associate, Forensic Print Specialist Donald Keir, is responsible for the illustrations and photographs in this volume. I am indebted to Don for his assistance.

The crime scene is where it all begins, the initial investigation leading, step by step, to its logical conclusion, a court of law.

It is here, the courtroom, where your knowledge and expertise will be put to the test as you present evidence that, by its nature, is absolutely irrefutable, the only question being that of probative value. But, that is for lawyers to argue! And argue they will, as we present our findings and conclusions.

So let's get on with it!

CONTENTS

THE STUDY OF LATENT FINGERPRINTS

CHAPTER I

HISTORY OF FINGERPRINTS

EVERY HISTORY of fingerprints refers to the pre-Christian era, some two thousand years ago, when ridge structure on the underside of the fingers was observed by men who made crude drawings of these skin features on the walls of caves in France and Nova Scotia. Whether or not the drawings are the result of their observation of ridge detail is debatable, but what is definitely known is that the people of the time did not understand the importance of fingerprints as a means of personal identification.

Fingerprints also have been found on a Chinese clay seal made two or three centuries before Christ. At a later date, fingerprints were discovered on a fragment of a Palestinian lamp, fourth or fifth century A D., and, at a much later date, in 1839, a fingerprint was used as a signature on a Chinese deed of sale. All of this is interesting, but it adds little or nothing to our knowledge of the science of fingerprints as we know it today.

The pioneers of fingerprints are those men who studied and observed the patterns of the fingers and palms, although their interest was mainly confined to physiological processes and not personal identification.

Dr. Nehemiah Grew, an English Botanist, wrote a paper on his observation of fingerprints, in 1684, the earliest known writing on the subject, which he presented to the Royal Society as a Fellow of the College of Physicians and Surgeons. The following year, 1685, Govard Bidloo, an Anatomist from Amsterdam, Holland, published his work in which he illustrated friction ridges and pore structure on the underside of the fingers.

In 1686, Professor Marcello Malpighi, of the University of Bologna, Italy, published the result of his research in respect to friction skin, using the newly invented microscope. His work was so well received that one

of the layers of skin, between the outer layer, the epidermis, and the inner layer, the dermis, is named for him, the stratum Malpighi.

The 1700s saw other works published on the subject of friction ridges on the underside of the hands by Christian Hintze, in 1747; Bernard Albinus, in 1764; and J.D. Mayer, in 1788.

In 1823, Johannes Purkinje, a Professor at the University of Breslau, published his work in which he described fingerprints and their various patterns, and assigned names to each pattern. But, like the others who preceded him, he did not foresee that fingerprints could and would be used in personal identification. It was for those who followed, armed with the information provided by the study and close observation of the above-named pioneers, who carried the science of fingerprints forward with their own observations and reached the conclusion that we know, today, to be the most perfect method of personal identification ever devised.

SIR WILLIAM J. HERSCHEL

Sir William J. Herschel (1833-1917) was a British Administrator in Bengal, India, for twenty years beginning in 1857. It was here that he first observed fingerprints and began to make use of them on official documents as a means of protection against fraud by native workers, as well as local contractors and pensioners, by means of a registration system of finger or thumb marks. In 1877, after many years of detail examination with this procedure, he wrote a letter to his superior officer, extolling the virtues of his system of finger marks, as he called it, and requested permission to extend his system to other government departments, citing his success in his own area. Permission was denied!

Herschel had made the discovery, after many years of observation, that fingerprints were unique and unchanging, and could be used as a means of personal identification. He did not devise any kind of a classification system, nor did he create a system where fingerprints could be stored and retrieved at will. At no time did he envision the use of fingerprints as a means of crime detection and solution, as was the case with Dr. Henry Faulds, and admitted as much in his letter to an English scientific journal, *Nature,* on January 18, 1917.

In this letter, in which he gave long overdue credit to Dr. Faulds, Herschel wrote "his (Faulds) letter of 1880 announced that he had come to the conclusion, by original and patient experiment, that fingerprints

were sufficiently personal in pattern to supply a long wanted method of scientific identification, which should enable us to fix his crime upon any offender who left finger marks behind him, and equally well to disprove the suspected identity of an innocent person. (For all which I gave him, and I still do so, the credit due for a conception so different from mine.)"

Herschel was referring to a letter written by Dr. Henry Faulds, on October 28, 1880, to the very same British journal, *Nature,* in which he stated "When bloody finger marks or impressions on clay, glass etc. exist, they may lead to the scientific identification of criminals." The different concept to which Herschel referred to is, of course, that crimes might be solved and criminals apprehended through their finger marks (fingerprints) that were left at the scene of the crime.

Dr. Faulds was the first to make this observation, while Herschel's observations were clearly of a different nature, referring only to the recording of fingerprints on contracts and other legal documents that would allow identification of the individual and prevent impersonation. Nevertheless, Herschel's observations and writings were of importance to the science of fingerprints.

DR. HENRY FAULDS

Dr. Henry Faulds (1843-1930), a Scottish medical missionary who, during his residence in Tokyo, Japan, in the late 1870s, had found fragments of prehistoric pottery that bore fingerprints of the Japanese potters, made when the clay was still soft. It was this that aroused his interest in fingerprints and led to his observation that finger patterns differed in every individual, without regard to sex or race and were "forever unchangeable."

This concept was revolutionary and one that eventually was to completely and irrevocably change the methods of criminal detection. Faulds's study of fingerprints led him to examine thousands of living fingers, including his own, those of his students, his medical associates and others with whom he came into contact, and caused him to write, in April, 1911, that his findings led to his concept of a wide and general method of identification which flashed upon him with great suddeness.

In this article, he also stated that, in hundreds of cases, he had shaved the finger pads, or friction ridges, down and when the skin had grown back, he observed that "not one solitary example of a variation

was detected." He observed that fingerprint patterns made by the ridge structure on the underside of the fingers do not change throughout life, barring injury or disease that may destroy the structure. The importance of this observation cannot be overstated, as it leads to the conclusion of the permanence of fingerprints up to the point of death.

The work of Dr. Faulds is of the greatest importance to a student of fingerprint identification. No attempt has been made in this volume to write at length about his work in this field. It is suggested that a more careful reading of this man's life and work in the science of fingerprints is warranted, and to whet the student's appetite, Faulds's letter to the British scientific journal, *Nature,* is included:

On the Skin Furrows of the Hand

In looking over some specimens of "prehistoric" pottery found in Japan, I was led, about a year ago, to give some attention to the character of certain finger marks which had been made on them while the clay was still soft. Unfortunately, all of those which happened to come into my possession were too vague and ill-defined to be of much use, but a comparison of such finger-tip impressions made in recent pottery led me to observe the characters of the skin furrows in human fingers generally.

From these I passed to the study of the finger tips of monkeys and found at once that they presented very close analogies to those of human beings. I have here few opportunities of prosecuting the latter study to much advantage, but hope to present such results as I may attain in another letter. Meanwhile, I would venture to suggest to others more favourably situated the careful study of the lemurs, etc., in this connection, as an additional means of throwing light on their interesting genetic relations.

A large number of nature prints have been taken by me from the fingers of people in Japan, and I am at present collecting others from different nationalities, which I hope may aid students of ethnology in classification. Some few interesting points may here be mentioned by way of introduction.

Some individuals show quite a symmetrical development of these furrows. In these cases all the fingers of one hand have a similar arrangement of lines, while the pattern is simply reversed on the other hand. A Gibraltar monkey (Macacus innus) examined by me had this arrangement. A slight majority of the few Europeans I have been able to examine here have it also.

An ordinary botanical lens is of great service in bringing out these minor peculiarities. Where the loops occur the innermost lines may simply break off and end abruptly; they may end in self-returning loops, or, again, they may go on without breaks after turning round upon themselves. Some lines also join or branch like junctions in a railway map. All these varieties, however, may be compatible with the general impression of symmetry that the two hands give us when printed from.

In a Japanese man the lines on both thumbs form similar spiral whorls, those of the left fore-finger form a peculiar oval whorl, while those of the right corresponding finger form an open loop having a direction quite oppo-

site to that of the right fore-finger in the previous example, A similar whorl is found on both middle fingers instead of a symmetrically reversed whorl. The right ring finger again has an oval whorl, but the corresponding left finger shows an open loop.

The lines at the ulna-palmar margin of this particular Japanese are of the parallel sort in both hands, and are quite symmetrical, thus differing from the Englishman's considerably. These instances are not intended to stand for typical patterns of the two peoples, but simply as illustrations of the kind of facts to be observed. My method of observation was at first simply to examine fingers closely, to sketch the general trend of the curves as accurately as possible, recording nationality, sex, colour of eyes and hair, and securing a specimen of the latter. I passed from this to "nature printing," as ferns are often copied.

A common slate or smooth board of any kind, or a sheet of tin, spread over very thinly and evenly with printer's ink, is all that is required. The parts of which impressions are desired are pressed down steadily and softly, and then are transferred to slighly damp paper. I have succeeded in making very delicate impressions on glass. They are somewhat faint, indeed, but would be useful for demonstrations, as details are very well shown, even down to the minute pores. By using different colours of ink, useful comparisons could be made of two patterns by superposition. These might be shown by magic lantern.

I have had prepared a number of outline hands with blank forms for entering such particulars of each case as may be wanted, and attach a specimen of hair for microscopic examination. Each finger-tip may best be done singly, and people are uncommonly willing to submit to the process. A little hot water and soap remove the ink. Benzine is still more effective. The dominance of heredity through these infinite varieties is sometimes very striking. I have found unique patterns in a parent repeated with marvelous accuracy in his child. Negative results, however, might prove nothing in regard to parentage, a caution which it is important to make.

I am sanguine that the careful study of these patterns may be useful in several ways:

1. We may perhaps be able to extend to other animals the analogies found by me to exist in the monkeys.
2. These analogies may admit of further analysis, and may assist, when better understood, in ethnological classifications.
3. If so, those which are found in ancient pottery may become of immense historical importance.
4. The fingers of mummies, by special preparation, may yield results for comparison. I am very doubtful, however, of this.
5. When bloody finger-marks or impressions on clay, glass, etc., exist, they may lead to the scientific identification of criminals.

Already I have had experience in two such cases, and found useful evidence from these marks. In one case greasy finger-marks revealed who had been drinking some rectified spirit. The pattern was unique, and fortunately I had previously obtained a copy of it. They agreed with microscopic fidelity.

In another case sooty finger-marks of a person climbing a white wall were of great use as negative evidence. Other cases might occur in medico-legal investigations, as when the hands only of some mutilated victim were found.

If previously known they would be much more precise in value than the standard mole of the penny novelists. If unknown previously, heredity might enable an expert to determine the relatives with considerable probability in many cases, and with absolute precision in some. Such a case as that of the claimant event might not be beyond the range of this principle. There might be a recognizable Tichborne type, and there might be an Orton type, to one or other of which experts might relate the case. Absolute identity would provide descent in some circumstances.

I have heard, since coming to these general conclusions by original and patient experiment, that the Chinese criminals from early times have been made to give the impressions of their fingers, just as we make ours yield their photographs. I have not yet, however, succeeded in getting any precise or authenticated facts on that point. That the Egyptians caused their criminals to seal their confessions with their thumb nails, just as the Japanese do now, a recent discovery proves.

This is however quite a different matter, and it is curious to obseve that in our country servant girls used to stamp their sealed letters in the same way. There can be not doubt as to the advantage of having, besides their photographs, a nature copy of the forever unchangeable finger-furrows of important criminals. It need not surprise us to find that the Chinese have been before us in this as in other matters. I shall be glad to find that it is really so, as it would only serve to confirm the utility of the method, and the facts which may thus have been accumulated would be a rich anthropological mine for patient observers.

Henry Faulds

Tsukiji Hospital, Tokio, Japan

This letter was dated October 28, 1880, and the editor of the journal, *Nature,* noted that Dr. Faulds had enclosed some interesting examples of printed finger-tips. It should be noted that Dr. Faulds's main interest in his findings deal with racial and sociological matters and the possibility of fingerprints being a means of personal identification only of secondary interest. What is of great importance is point #5 in his letter that deals with an identification of a person through his greasy finger-marks, and of sooty finger-marks that were used to establish the innocence of someone.

Dr. Faulds, in his letter, stated that he was doubtful if the fingers of mummies could yield positive results for comparison, but upon his return to Britain he paid visits to the British Museum, where he had the opportunity to examine the hands of mummies, and determined that the ridge structure had been preserved. It also should be noted that no evi-

dence exists that ancient Egyptians used finger-marks as signatures, or for any other purpose.

Faulds's reference to Tichborne and Orton refers to an interesting case of identity that began on Christmas day, 1866, with the arrival, in London, England, of Arthur Orton. It was the beginning of one of the longest legal processes in British history.

Arthur Orton claimed to be Roger Tichborne, heir to the vast estates of Sir Alfred Tichborne-Bart, and believed to have drowned at sea, in April, 1854. Lady Tichborne claimed him as her son, refusing to believe that her son was dead, and became one of his most important witnesses at the trial that began in 1871, in the attempt to establish his identity and claim his fortune, lasting for 118 days. His claim was denied, after much physical evidence was presented to rebut his many witnesses, and he was charged with giving false testimony and held for criminal prosecution. The trial, lasting 188 days, ended with his conviction and sentencing to prison.

The reference by Dr. Faulds was for the purpose of declaring that, had a single fingerprint of Roger Tichborne existed at that time, it would have been a simple matter to take the fingerprints of Arthur Orton and compare them, thereby bringing this farce to an early end. Such is the value of fingerprints as a means of personal identification, a system so precise and so exact, that it leaves not the slightest trace of doubt.

SIR FRANCIS GALTON

Sir Francis Galton (1822-1911) was knighted just two years before his death. His achievements were many, and the tribute of his knighthood was more than deserved. He had served his country, and science, well. The praise heaped upon him could not be disputed. A rich source of information on the life of this extraordinary man is to be found in Karl Pearson's *The Life, Letters and Labours of Francis Galton,* Cambridge University Press, in three volumes.

Galton's early education began with the study of medicine, at General Hospital, Birmingham, England, in 1838, and King's College, London, in 1839. His scientific activities were numerous, consisting of geography, ethnology, meteorology and then, later, in the studies of biological variation, eugenics, heredity, statistical theory and practice and, of course, fingerprints. It appears that Galton's interest in the science of fingerprints did not come about until he had been invited to give a lec-

ture on the Bertillon System of Identification before the Royal Institution, in 1888.

There is evidence, according to Mr. George Wilton, who, in his book *Fingerprints: History, Law and Romance,* by William Hodge and Company, Limited, stated that Dr. Henry Faulds had written to Charles Darwin, cousin to Galton, in February, 1880, about "finger patterns in man and monkeys," in his quest for material for further research. Darwin, in turn, wrote to Galton, referring to the subject of finger patterns, suggesting that the idea may be of interest to the Anthropological Institute. It was not, and nothing came of it!

In preparing his lecture on the Bertillon System of Identification, Galton decided to travel to Paris and visit the man responsible for the first scientific identification system, Alphonse Bertillon, Chief of the Judicial Identification Service of France. He was able to observe, first hand, the actual operation of the system called "anthropometry" by its originator. Galton, while working on his notes, recalled that "thumb marks" had also been mentioned as a possible means of identification and decided to look into it. He sought further information from the British scientific journal, *Nature,* which led him to the subject of fingerprints, and which he pursued to study further.

At first, Galton relegated fingerprints to a secondary role, behind that of Bertillon's system of identification, perhaps due to the fact that no system of classification of fingerprints was known at the time. But, thanks to Juan Vucetich, of Argentina, and Sir Edward Henry, both of whom had devised a system deemed adequate for the large files of fingerprint cards expected in the pursuit of criminals, Galton came to the conclusion that the system of fingerprint identification would become paramount and eventually replace anthropometry, which, in fact, it did.

In October, 1893, Lord Asquith, Secretary of State for the Home Department, appointed a committee to investigate the present methods in use of identifying criminals, including the Bertillon system, and also a new system that was receiving much attention, fingerprints. Galton was called to testify before this committee, where he gave a demonstration of fingerprint identification. In February, 1894, the final report was to recommend the retention of the Bertillon system, but included the addition of the new fingerprint method of identification, with the provision that fingerprints were to serve as the ultimate proof of identity.

Within a few years, in 1900, another committee was appointed to make further investigations and recommendations. Their decision was

to discontinue the cumbersome and time consuming Bertillon method and to rely solely on fingerprints, which went into effect the following year, 1901. To this day, the basic or principal ridge characteristics: bifurcations, ridge endings, islands and enclosures are referred to as the Galton Details, named by Sir Francis Galton during his period of intense observation of fingerprints.

In his book, *Fingerprints,* published in 1892, Galton stated:

> Let no one despise the ridges on account of their smallness, for they are in some respects the most important of all anthropological data. We shall see that they form patterns, considerable in size and of a curious variety of shape, whose boundaries can be firmly outlined, and which are little worlds in themselves. They have the unique merit of retaining all their peculiarities unchanged throughout life, and afford in consequence an incomparably surer criterion of identity than any other bodily feature. There is no prejudice to be overcome in procuring these most trustworthy sign manuals, no vanity to be pacified, no untruths to be guarded against.

Read it! It's a classic!

ALPHONSE BERTILLON

The anthropometric, or body measurement, system was devised by Alphonse Bertillon (1853-1914), a clerk in the Prefecture of Police, Paris, France, in 1879, and put into operation in 1882. The system consisted of measuring height, distance between outstretched arms, width and length of head, nose and ears, etc., distance between shoulder and elbow, wrist and tips of fingers, eye color, hair color, moles, scars, tattoos and also included photographs. A classification system was worked out so results of each measurement could be filed for future reference.

This was the first truly scientific method of personal identification, and found its way into many police departments of the world. Bertillon had no connection with, and made no contribution to, the science of fingerprints that eventually was to replace his system of anthropometry.

When Sir Francis Galton wrote to Bertillon, suggesting the inclusion of fingerprints in his identification files, Bertillon rejected it outright. At a later date, Bertillon did invite Galton to Paris to demonstrate his knowledge of fingerprints and the possibilities it might present in the field of identification. Bertillon later adopted the fingerprint system but gave it a secondary role to his anthropometric system in the Paris identification files.

In 1879, after serving as a clerk for a period of eight months, he presented his anthropometric system to the Prefect of Police, in a report on October 1, 1879. It was coldly received and rejected outright! But a good thing happened to Bertillon when the Prefect of Police retired and a new one reigned in his stead. In December, 1882, Bertillon was given a chance to put his anthropometric system into operation, on a trial basis. He was given three months to prove his method worked.

Two months later, on a cold, wet day in February, 1883, Bertillon made the first successful identification with his system. In March, 1883, a second identification, and in the following three months, six more identifications. The months of July, August and September brought forth another fifteen identifications, and the last three months of 1883 produced an additional twenty-six identifications. It was noted that he had recorded 7336 measurements in the year of 1883.

In 1888, Alphonse Bertillon was made Chief of the newly created Department of Judicial Identity. He made use of fingerprints in a secondary manner, placing them in the same category as his "special marks," such as height, color of hair and eyes, etc., and was the creator of the "portrait parle" or "speaking likeness." Oddly enough, Bertillon was responsible for the very first case in France involving fingerprints, which were used to convict a man of murder, in 1902.

At his death, in 1914, the Bertillon system was discarded in favor of the proven fingerprint system then sweeping the world.

MARK TWAIN

Mark Twain (Samuel Langhorne Clemens, 1835-1910), author and lecturer, has linked his name with the study of fingerprints through the publication of two of his works.

In 1883, Twain's *Life on the Mississippi* was published, in which he tells the story of a man whose wife and child are murdered by two soldiers, one of whom has the thumb missing from his right hand. He is determined to avenge the murders and disguises himself as a fortune teller who can read the future through a person's fingerprints. This knowledge was gained as a young man from a French prison guard, who told him that the lines on the ball of the thumb were different in each man and were unchanging throughout one's lifetime. His search is successful, as he locates the man with the missing thumb and, after having examined the fingerprints of numerous men, he identifies the murderer.

Some writers have made the observation that perhaps the old prison keeper was based on Sir William Herschel, the British Administrator of Bengal, India, who had made an important contribution to fingerprints through his work and observations during the time he spent in India.

The source of Twain's information regarding fingerprints is unknown, but some have speculated that Twain was aware of the letters written by Faulds and Herschel in the British Journal, *Nature,* three years before the publication of Twain's work. Whatever the source, it is indeed interesting that Twain should be so knowledgeable about a science that was to be.

Approximately eleven years later, in 1894, Twain published an even more astonishing work on fingerprints in his *Pudd'nhead Wilson,* which deals with an attorney who collected the fingerprints of all the town's people.

In this work, a judge is murdered and on the handle of the murder weapon, a knife, are fingerprints in the victim's blood. The attorney, Wilson, proceeds to demonstrate his knowledge of fingerprints as he defends the accused, the judge's heir.

He lectures the court and the jury on fingerprints stating a premise that had not as yet been accepted in the scientific world. He proposed, and correctly so, that no two fingerprints are the same, and that ridge characteristics never change during a person's lifetime. Wilson referred to twins "who were so exactly alike that when dressed alike their own parents could not tell them apart. Yet there was never a twin born into this world that did not carry from birth to death a surer identifier," his or her fingerprints.

A remarkable work for its time!

JUAN VUCETICH

Juan Vucetich (1858-1926) was born in Dalmatia, emigrating to Argentina in 1884, where he joined the Argentine Police that same year. In 1889, he was appointed head of the Anthropometric Bureau of Identification, Provincial Police of Buenos Aires, headquartered in LaPlata, Argentina. In 1891, having read the lecture given by Galton on "Patterns in Thumb and Finger Marks," he proceeded to interest himself in fingerprints and, in September, 1891, devised the first practical system of fingerprint classification.

Vucetich did not favor the anthropometric system of body measurement as a means of identification. At a Conference on Fingerprints, in

LaPlata, in 1901, he stated: "I can assure you that from 1891 until 1895, the years during which we used the anthropometric system, never, in spite of all our efforts, were we able to determine with certainty the identity of an individual by means of measurement because we always found differences for the same person. For this reason we adopted the system of fingerprints."

The fingerprint system devised by Vucetich, in use not only in Argentina but in many of the countries in Central and South America, has proven to be very effective. It contains 1,048,576 primaries in contrast to the Henry System, which has 1,024 primaries.

Juan Vucetich was the first to gain a conviction from the introduction of fingerprint evidence into a court of law, and it was a case of double murder.

In 1892, Francisca Rojas had accused a neighbor of having murdered her two sons. Vucetich investigated the case and was able to prove, beyond any doubt, that the bloody fingerprints found on a door frame were hers and not the neighbor she had unjustly accused. She was convicted on this evidence alone, establishing Vucetich as the first to use fingerprints in a criminal case.

The first recorded case of a conviction on fingerprint evidence in Europe occurred in Paris ten years later, in 1902.

In 1904, Vucetich completely discarded the anthropometric system of identification in favor of his fingerprint classification system, which by this time he had perfected. Nine years later, in 1913, he made a trip to France, and while in Paris, decided to pay a courtesy call on Bertillon, whom he, like many others, considered to be the Father of Scientific Detection.

Bertillon refused to receive him, apparently believing that Vucetich had offended him by both word and deed. He at first kept Vucetich waiting in an outer office, for a good length of time, and when he appeared at his office door, it was only to make it clear to Vucetich that he was not at all welcome, closing the door upon a relationship that never had a chance to flower.

They never met again! Bertillon died the following year, in 1914, and Vucetich followed twelve years later, in 1926. They should have been friends, being fellow scientists, but it was not to be.

SIR EDWARD RICHARD HENRY

Edward Richard Henry (1850-1931), later Sir Henry, was born in East London, the son of a doctor. He was only twenty-three years of age

when he entered the Indian Civil Service, in 1873, having been appointed Assistant Magistrate Collector for the province of Begal, India.

In 1891, Sir Henry became the Inspector General of Police, during which time he became aware of the fingerprint system in use, limited as it was, that had been introduced by Herschel some years before. But it was Bertillon's system of anthropometry which he relied on for personal identification while in Bengal, and which spread to many other provinces in India, beginning in 1892.

It was in 1893 that Henry paid a visit to Galton, in London, where he was influenced to take a greater interest in the new method of personal identification—fingerprints. Upon his return to India, he gave himself over to perfecting a system of fingerprint classification that eventually would become standard practice throughout much of the world.

In 1897, after three years of research and hard work, the Government of India adopted the fingerprint system he had so laboriously devised. It was in that year that India completely discarded the Bertillon system and relied solely upon fingerprints as a means of identification, becoming the first country to do so.

The year 1899 found Henry in Dover, England, where he read a paper at a gathering of the British Association for the Advancement of Science, which outlined the fingerprint system presently in use in India. The following year, he published his Classification and Uses of Finger-Prints, which has gone through many publications.

In 1901, Henry returned to England to become Assistant Commissioner of Police, in Charge of Criminal Identification, New Scotland Yard. Two years later, in 1903, he became Commissioner of Police. The year 1901 saw the acceptance of his fingerprint system into England and Wales, which became the primary method of criminal identification, replacing anthropometry, Bertillon's system of body measurement.

It should be noted that Henry did not devise his worldwide fingerprint system alone, and that he did, in fact, rely very much upon two police officials who were in his employ, in Bengal, India. They are Azizul Haque and Hem Chandra Bose, both of whom worked with Henry during the three year period, 1894-1897, when they developed the now widely used fingerprint classification system.

During a visit to India, in 1912, Sir Edward Richard Henry attended a meeting, in Calcutta, of the Officers of the Bengal Police, during which time he made known to the world the debt he owed both men for their important contributions to the fingerprint system that bears his name.