

HISTORY OF FINGERPRINTS



**CRIMINAL INVESTIGATIONS
&
PERSONAL IDENTIFICATION**

MEN OF HISTORY THAT MADE A DIFFERENCE



DR. N. GREW
1641-1712

**Physician
delivered the first
lecture in 1684 on
ridges on fingers.**



THOMAS DE LAET
1611-1684

**An English author and
wood engraver stimulated
interest in fingerprints by
using them as his trade
mark.**



SIR WILLIAM HERSCHEL
1793-1871

Introduced the use of fingerprints
for identification.



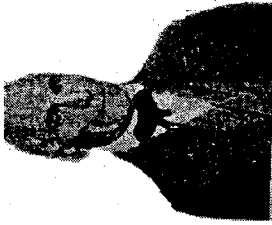
SIR FRANCIS GALTON
1822-1911

First to study and identify
ridge characteristics.



SIR EDWARD HENRY
1859-1921

Developed the ten finger classification
system used in all English countries.



JOHN EVANGELIST PURKINJE
1787-1859

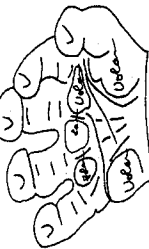
Delivered a commentary and published a treatise on
the organs of touch, in which he classified
fingerprint patterns into nine groups.



HENRY FAULDS
1843-1930

Recommended the use of fingerprints as a method of
identification and the use of printers ink.

WHAT ARE FINGERPRINTS?



FINGERPRINTS ARE COMPLETELY FORMED BY THE END OF THE FIRST TRIMESTER

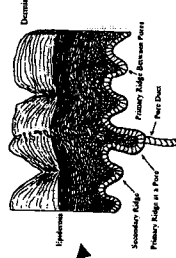
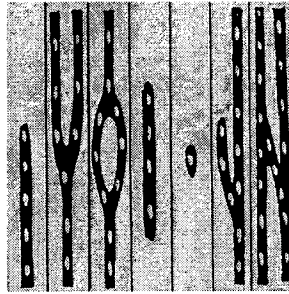


ONCE FORMED THEY NEVER CHANGE UNTIL DEATH AND DECOMPOSITION



UNLESS SCARRING OR DISEASE CHANGE THE FINGERPRINT

- MINUTIAE
- ENDING RIDGE
- BIFURCATION
- ISLAND
- SHORT RIDGE
- DOT
- FORK
- CROSS OVER



THE RIDGE FORMATION AND STRUCTURE. Found on the hands and feet.

WHAT MAKES FINGERPRINTS IDENTIFIABLE?

THE PATTERN TYPES



LOOP



WHORL



ARCH

WHY FINGERPRINT IDENTIFICATIONS?

The Branding or scarring of suspects. Which still continues in some countries today.



Bertillon system of measurements.



Photography

The West Case

Leavenworth Penitentiary 1904



Bertillon System



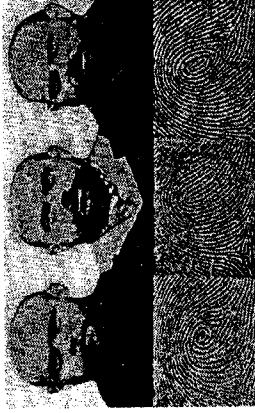
William West and Will West
Similar pictures and close body measurements
Fingerprints not the same.



PEOPLE CAN CHANGE
THEIR APPEARANCE



PEOPLE CAN LOOK ALIKE



BUT THEY CANNOT CHANGE
THEIR FINGERPRINTS

THREE CATEGORIES OF OBTAINING PRINTS



ROLLED IMPRESSION OR KNOWN



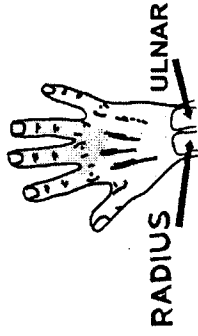
**LATENT IMPRESSION
IS HIDDEN AND MUST BE DEVELOPED**



PATENT OR PLASTIC IMPRESSION

THE PROPER METHOD OF ROLLING FINGERPRINTS

**ROLL FROM NAIL TO NAIL
THE COMPLETE FIRST JOINT
AREA**



**MAKE SURE THAT THE INK
IS EVENLY DISTRIBUTED AND
THAT YOU ROLL THE COMPLETE
FINGERPRINT.**



**AUTOMATED FINGERPRINT TECHNOLOGY
1976 NEC, JAPAN**



REVOLUTIONIZES FINGERPRINT IDENTIFICATIONS

THE TEN PRINT CARD



**MAKE SURE TO CHECK FLAT IMPRESSIONS AGAINST
THE ROLLED TO INSURE THAT THE FINGERS ARE IN
THE RIGHT BOX.**

HOW FINGERPRINTS RELATE TO CRIME SCENES



**SECRETIONS FROM THE PORES
ON THE RIDGES OF THE FRICTION SKIN**

SECRETIONS FROM THE PORES

CONSISTS OF...



98% WATER

**THE REMAINING 2%
CONSISTS OF THE FOLLOWING:**



AMINO PROTEINS

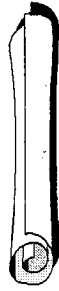


FATS



SALTS

**TYPES OF SURFACES DETERMINE
WHAT METHOD OF LATENT RECOVERY**

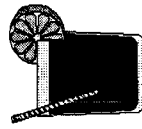


PAPER

**POROUS
REQUIRES
CHEMICALS AND/
OR LIGHT SOURCES**



LEATHER

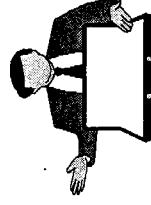
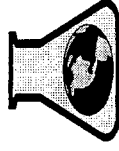


GLASS ITEMS

**NON-POROUS
MAY BE OBTAINED
WITH POWDERS
OR CHEMICALS**

HOW FINGERPRINTS ARE LEFT

**SWEAT, GREASE AND OIL
ACTS AS A TRANSFER MEDIUM**



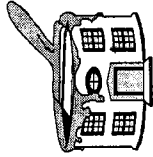
**PEOPLE WHO DO NOT SWEAT
MAY NOT LEAVE FINGERPRINTS**



**NATURES EFFECTS CAN
DEGRADE LATENT PRINTS**

THE CRIME SCENE

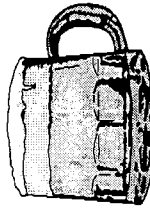
**THE POINT OF ENTRY
AND AREAS MOST LIKELY
TO HAVE BEEN TOUCHED**



ASK QUESTIONS OF THE VICTIM(S)



**LOOK FOR THE OBVIOUS
ITEMS MOVED OR TOUCHED**



**METHODS OF PROCESSING
ITEMS FOR LATENT PRINTS**

POWDERS

**BLACK
BIOCROMATIC
RED, WHITE
MAGNETIC**

CHEMICALS


**NINHYDRIN, DFO,
PHYSICAL DEVELOPERS
STICKY SIDE POWDER
IODINE, SILVER NITRATE**

SPECIAL PROCESSING

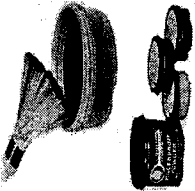
**SUPER GLUE
CYANOACRYLATE**

**FORENSIC LIGHT SOURCES
COLORS OF THE SPECTRUM
LASERS**


EQUIPMENT NEEDED FOR DUSTING




FINGERPRINT BRUSH



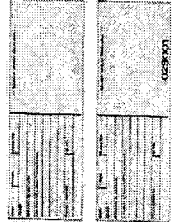
FINGERPRINT POWDERS



FINGERPRINT TAPE



MAGNIFYING GLASS



LATENT LIFT CARD

HOW TO COMPLETE A LATENT LIFT CARD

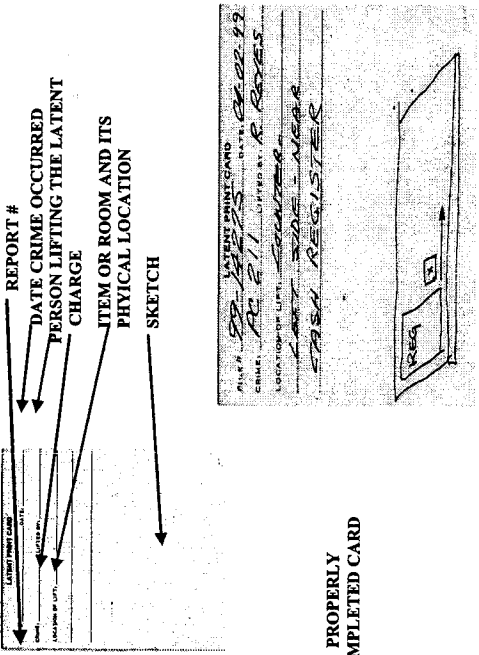
REPORT #

DATE CRIME OCCURRED

PERSON LIFTING THE LATENT CHARGE

ITEM OR ROOM AND ITS PHYSICAL LOCATION

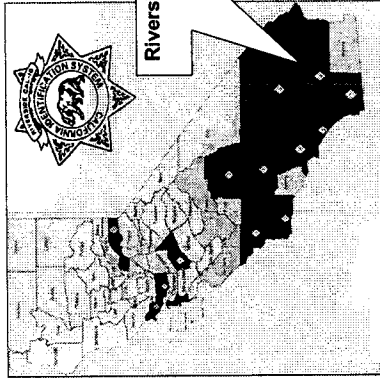
SKETCH



PROPERLY COMPLETED CARD

PROPER DOCUMENTATION IS ESSENTIAL

Remote Access Network Established 1985



Riverside San Bernardino
Region

R.A.N BOARD

Local Board

- Sheriff
- Member Board of Supervisor
- District Attorney
- Police Chief (2)
- Police Chief Largest City
- Mayor at large

Regional Board

- 2 Sheriff's
- 2 Boards of Supervisors
- 2 District Attorneys
- 1 Member at large

CAL-ID FUNDING

1. Local AFIS (100%)

Member Assessments

per capita - based on annual population estimates provided by the California Department of Finance

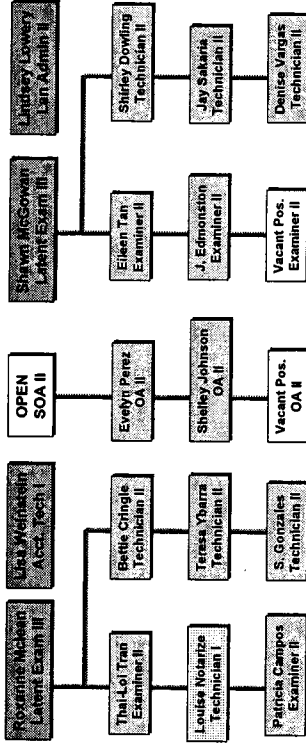
AB544 Penalty Assessments

SB720 Department of Motor Vehicles

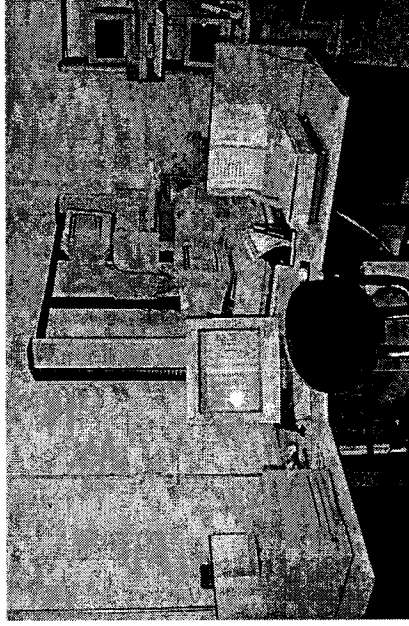
2. Regional (50% / 50%) Riverside / San Bernardino County

CAL-ID STAFF TODAY

M. T. Michael Andrews
Project Manager



AFIS-21 INSTALLED DECEMBER 1999

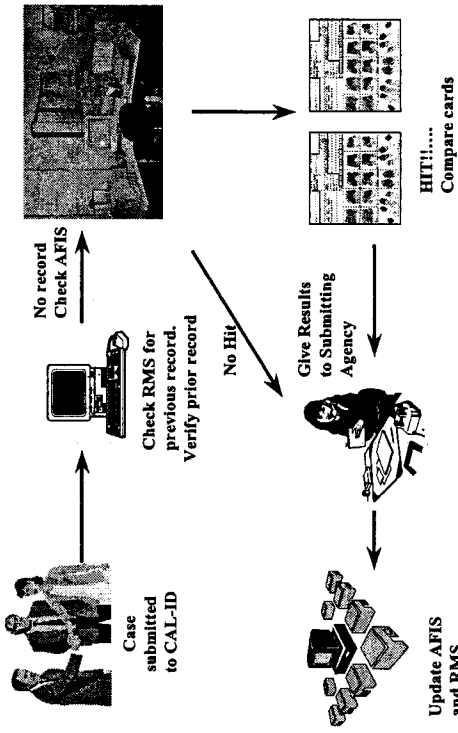


ADVANCED TECHNOLOGY

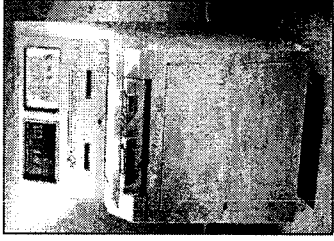
SERVICES PROVIDED BY CAL-ID

1. AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM
2. LIVE SCAN NETWORK (APPLICANT AND CRIMINAL)
3. DNA LABORATORY
4. COUNTY-WIDE PHOTO IMAGING
5. HIT RECOGNITION PROGRAM
6. TECHNICAL ADVISORY COMMITTEE
7. ADVANCED TECHNOLOGY FOR ALL, AT LOW COST

MANUAL TENPRINT CASE PROCEDURE



1989 LIVE-SCAN TECHNOLOGY



ELIMINATES THE USE OF PRINTERS INK

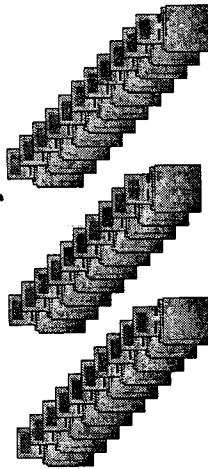
PROVIDES REMOTE CAPTURE AND TRANSMISSION USING HIGH RESOLUTION SCANNING EQUIPMENT

RIVERSIDE COUNTY LIVE-SCAN PROJECT

Original placement Policy 5 Locations



Today's Network - 33 devices



AFIS-21 ADVANCED TECHNOLOGY

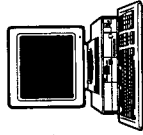
AFIS CONTROLLER



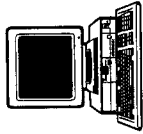
Department of Justice
AFIS Controller



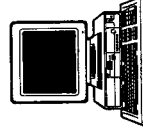
CRIMINAL HISTORY



AFIS COMPUTER



ARCHIVE



INTERACTIVE AUTOMATED PROCESSES
LIMITED HUMAN INTERVENTION

**RIVERSIDE COUNTY
CAL-PHOTO PROJECT**

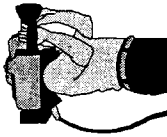
1 Million - Image Database capacity, current size 148,000.

17 Dual capture and retrieval sites.

16 Retrieval only sites.

Searching capabilities by photo/descriptive information.

Photo Line-up capabilities for six-packs.



**ON BEHALF OF
RIVERSIDE
CAL-ID**

THANK YOU

WEB-SITES RELATED TO FINGERPRINTS

<http://www.onin.com/fp/>

<http://www.scafo.org/>

<http://www.redwop.com/default.asp>

<http://www.theiai.org/>

Links to other sites are contained on each of these sites.