

Fingerprint Analysis in the Identification of Missing Persons and Unidentified Decedents

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Disclaimer



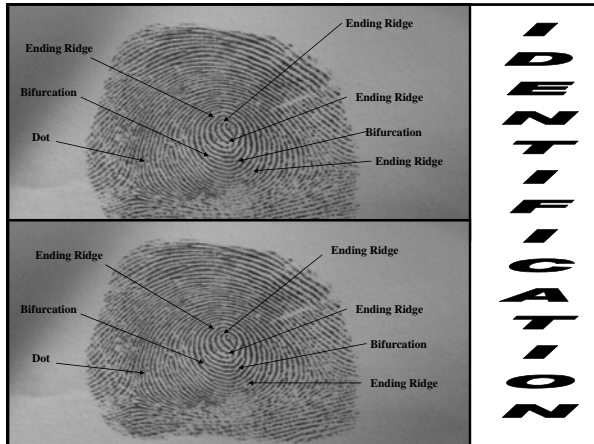
Information shared in this session is graphic.

Information and forensic slides may be disturbing.


Discussion will be frank and forward.

Fingerprint Analysis of Unidentified Decedent

- The two basic factors are that fingerprints are individually unique and permanent.
- Barring accidental or surgical removal of the finger itself, this ridge arrangement is permanent for the life of the individual and will endure until decomposition of the body after death.

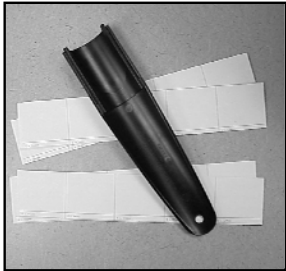


Fingerprint Analysis of Unidentified Decedents



- In cases of decomposition or physical damage, the identity of the deceased must be established by scientific methods.
- First method of scientific identification is the use of fingerprint examination and comparison.

Fingerprint Analysis of Unidentified Decedents



- Inked postmortem fingerprints are collected.
- Postmortem fingerprints are compared to:
 - previous arrest records
 - military service records
 - federal employment records
 - state driver's license records

Fingerprint Analysis of Unidentified Decedents

➤ Advanced decomposition or damage of friction ridge tissue.

➤ Disarticulation of epidermal layer with a scalpel.

➤ Removal of fingers and/or hands.



Fingerprint Analysis of Unidentified Decedents



Mexican Military ID

UPDATE ANNUALLY

IDENT-A-PRINT WHAT TO DO IF YOUR CHILD IS MISSING

1. When a child is missing act quickly, time is of the essence.
2. Call the Police immediately. Don't wait.
3. Show the Police the IDENT-A-KID Card.
4. Alert friends, neighbors, and relatives. Organize a search for your child as quickly as possible.
5. Check your child's favorite play areas. Have someone else check these areas again.
6. Be prepared. Child protection is the responsibility of everyone.

RIGHT THUMBPRINT

Unidentified Decedents



Unidentified Decedents



Sole Print Identification



Live Victim



Live Victim



BSC West DHS Fingerprint Center



- 24/7 operation
- 365 days a year
- Databases available include: IAFIS; Immigration database IDENT
- 70% of IDENT not included in IAFIS

Automated Fingerprint Identification Systems (A.F.I.S.)



- Used for both inked and latent fingerprints.
- High-resolution scan of fingerprint is entered into system and converted to algorithm.
- Search is then performed against existing database for possible candidates.
- Identification is performed by the examiner.

Retainable Files (AFIS)

- Applicants for any and all State of Texas / Certificates / Licenses which
 - Concealed Handgun License / Texas Lottery Commissions / T.E.A. (Texas Education Agency)
 - *Public and Private schools

- | | |
|--|--|
| <ul style="list-style-type: none"> • HAZMAT D.L. <ul style="list-style-type: none"> - Transportation of any hazardous materials, i.e. cargo, liquid, powders • TSA <ul style="list-style-type: none"> - Applicant / Security Screener • PI <ul style="list-style-type: none"> - Private Investigators/Private Security Guards • SAVINGS AND LOANS <ul style="list-style-type: none"> - Loan Officers / Security Brokers • CONSUMER CREDIT <ul style="list-style-type: none"> - Pawn Shop / Check Cashing Businesses • RACING COMMISSION <ul style="list-style-type: none"> - Horse Racing / Dog Racing - TCLEOSE / JAIL COMMISSIONS | <ul style="list-style-type: none"> ▪ DEPT. OF HEALTH AND HUMAN SERVICES <ol style="list-style-type: none"> 1. Adoption-Family / Foster Parenting 2. Mental Health Facilitators / Janitors / Kitchen Aids / Transporters • BOARD OF NURSING EXAMINER'S <ul style="list-style-type: none"> - 1 year ago started putting in the data base Nurse Practitioners / Chiropractors / All Licenses Medical Personnel ▪ TCADA <ul style="list-style-type: none"> - Texas Commission of Alcohol and Drug Abuse / Psychologist / Rehab Facilitators / Drug Abuse Counselors ▪ JUVENILE / ADULT PROBATION OFFICERS |
|--|--|

Fingerprint Analysis of Unidentified Decedents



- Fingers of the deceased are shriveled due to early decomposition.
- The injection of tissue builder under the skin.
- Restores the tissue to its approximate original shape.
- Allows the collection of inked postmortem fingerprints.

Disarticulation of thumb





Homicide Case



Unidentified Decedents



Unidentified Decedents

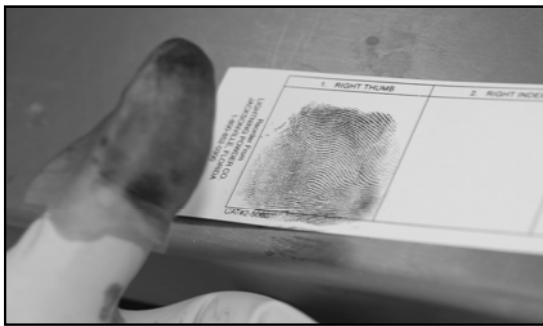


Unidentified Decedents



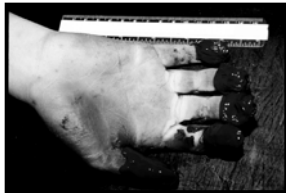
We often have to de-glove the skin from one or more of the decedent's fingers in order to obtain a satisfactory fingerprint.





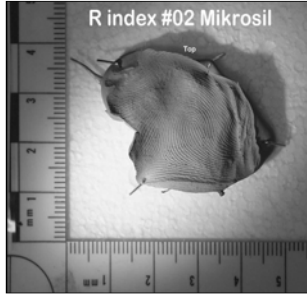
We slip the de-gloved skin onto one of our fingers and roll the fingerprint as usual. Then the prints are run through our A.F.I.S. system.

Fingerprint Analysis of Unidentified Decedents



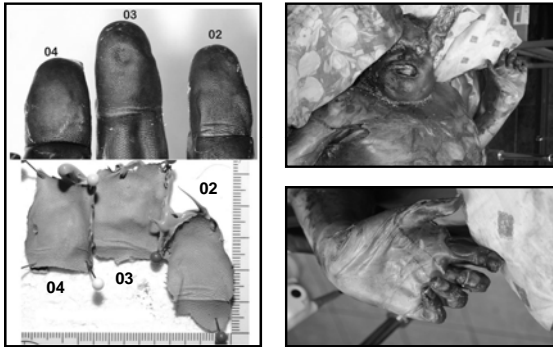
- Mikrosil scientific casting material.
- Epoxy-like material is mixed and applied to friction ridge skin.
- Material flows onto the ridges and valleys creating a negative replica of fingerprint.

Fingerprint Analysis of Unidentified Decedents

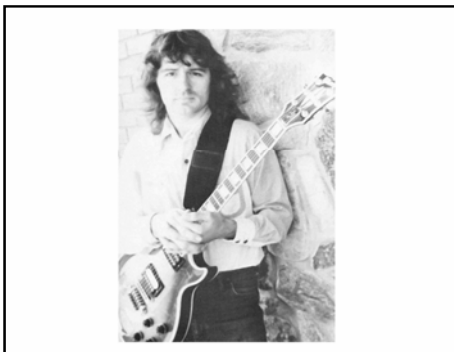


- Mikrosil cast of friction ridge skin is removed.
- Casting is viewed with oblique lighting.
- Individualizing characteristics are examined to effect identification.

Fingerprint Analysis of Unidentified Decedents



Mt. Carmel / Waco, Texas



Mt. Carmel / Waco, Texas

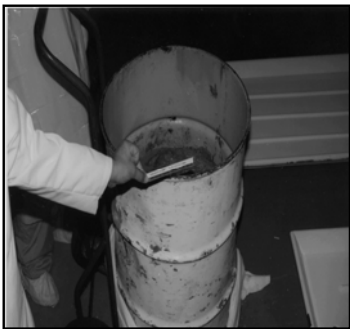


Fingerprint Analysis of Unidentified Decedents

- Removal of epidermis
- Mounted between microscopic slides
- Digital photography



Fingerprint Analysis



Body is in a 55 gallon steel barrel sealed with lid and locking ring.

Fingerprint Analysis of Unidentified Decedents

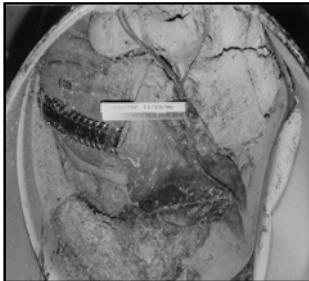


- Initially examined in the bay area of the Tarrant County Medical Examiner's Office.

- The Trace, Anthropology and Latent Print Laboratory assisted in identification.

Fingerprint Analysis of Unidentified Decedents

- Partially submerged
- Malodorous liquid
- Strong ammonia smell
- Only buttocks, low back and feet visible



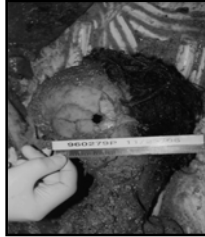
Fingerprint Analysis of Unidentified Decedents

- Multicolored T-shirt
- Torn blue jeans
- Black leather western belt
- White Jockey underwear
- White socks



Fingerprint Analysis of Unidentified Decedents

- Gunshot wound to left cranium is present with prominent radiating fracture



Fingerprint Analysis of Unidentified Decedents



- Body is fully articulated in an advanced state of post mortem decomposition

Fingerprint Analysis of Unidentified Decedents

- Upper portion of the body wrapped in large blood stained towel

- Foam and cushion covered the buttocks, left hip, and back

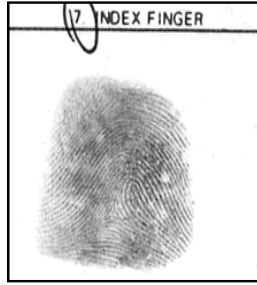
- Blanket held in place with knotted rope around and ankle



Fingerprint Analysis of Unidentified Decedents



Post-mortem



Known Fingerprint From P.D.

Scene Investigation



Scene Investigation



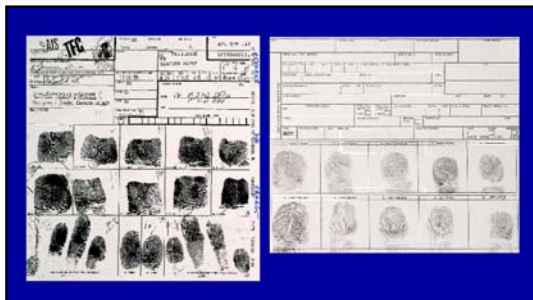
Forensic Examination



Human Identification



Fingerprint Comparison



Fingerprint Analysis of Unidentified Decedents



- Examination for friction ridge skin
- Removal of phalangeal joint
- Clean friction ridge area
- Digital photography

Fingerprint Analysis of Unidentified Decedents

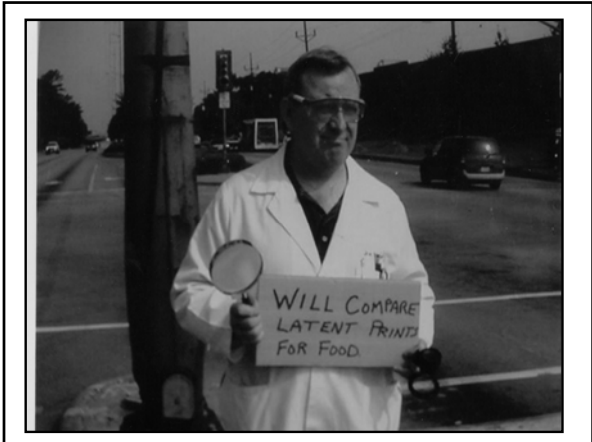
- Close up examination of available friction ridge



Fingerprint Analysis of Unidentified Decedents



- Removal of epidermis
- Digital photography of friction ridge skin



References

- Ashbaugh, David R. 1999. *Quantitative-Qualitative Friction Ridge Analysis*. Boca Raton, FL: CRC Press.
- Black, Sue and Tim Thompson. 2007. *Forensic Human Identification*. Boca Raton, FL: CRC Press.
- Cowger, James F. 1983. *Friction Ridge Skin*. New York, NY: Elsevier Science Publishing Co., Inc.
- Dix, Jay and Michael Graham. 2000. *Time of Death, Decomposition and Identification an Atlas*. Boca Raton, FL: CRC Press.
- Gaensslen, R. E. and Henry C. Lee. 1994. *Advances in Fingerprint Technology*. Boca Raton, FL: CRC Press.
- Hardwick, S. A. T. Kent and V. G. Sears. 1990. *Fingerprint Detection by Fluorescence Examination*. Sandridge, St. Albans, U.K: Heanor Gate Printing Ltd.

References Continued

- Higgins, Peter T., Nicholas M. Orlans and John D. Woodward, Jr. 2003. *Identity Assurance in the Information Age – Biometrics*. Berkeley, CA: McGraw-Hill/Osborne.
- Menzel, E. Roland. 1999. *Fingerprint Detection with Lasers*. New York, NY: Eastern Hemisphere Distribution.
- Olsen, Robert D. Sr. 1978. *Scott's Fingerprint Mechanics*. Springfield, IL: Bannerstone House.
- Sampson, William C. 1997. *Recovery of Latent Fingerprint Evidence from Human Skin*.
- *Science of Fingerprints*. 1984. 12th. Washington, D.C.: United States Government Printing Office.
