Barefoot Morphology Comparison

What to Collect & How to Collect It.

Shelly L. Massey, Sgt.
RCMP Forensic Identification Services
What Is a Foot Morphology Comparison?

• Comparison of the impression left by the weight bearing area of the foot to an impression at a scene, or in a shoe.

• Could be:
  – Bare foot.
  – Sock foot.
  – Insole impression.
  – 3D impression.
Persistence – Impressions 12 years apart
Persistence

2000

1985
Uniqueness  Distinguishing Between Individuals

Which are from the same person?
Uniqueness Distinguishing Between Individuals

Identical Twins
Crime Scene Examination

- Overall photographs
- Midrange photos
- Close up photos - collect all available impressions.
  - Fill the frame with the foot
  - Flash placement
  - Proper scale
  - Collect ALL available impressions.
- Chemical enhancement if necessary
- Consider Seizure of Exhibit
- 3D crime scene impressions should be photographed and cast.
Known Standards
(from Subject of Inquiry)

- Photographs of the subject’s feet.
- Biofoam/ Foam Art Impressions of bottoms of feet
- Silicone Casts of tops of toes
- Inked bare foot walking impressions
- Inked bare foot static impressions
- Inked sock foot walking impressions
- Inked sock foot walking impressions
- Suspect shoes KNOWN to be suspect’s
  - (If possible and it is shoes that are going to be compared
Some of the Supplies you will need:

- Zetalabor or Ruthinium Labour Mass
• Photograph both feet tops, sides, soles and heels with scale at same plane as the area being photographed
Zetalabor or Ruthinium Labour Mass Silicone Casting Material

- Take soft ball sized amount and work in sufficient unexpired activator
- Separate into two and place over tops of toes of each foot, while in sitting position.
- Watch subject does not move feet/ wiggle toes
- Remove when hardened. (5-10 minutes if enough hardener used)
Casts Will Be Made From the Molds Taken From the Top of the Toes
Barefoot and socked foot walking impressions
Watch what they are doing....before you start the procedure and during. Take as many standards are as needed.
Inked Static Barefoot and Socked Foot Impressions

- Have subject re-ink their bare feet, sit in chair, and while feet are raised place legal size paper beneath feet.
- Have them stand up, then sit back down, lifting feet straight up.
- Take several sets of static impressions this way.
- Repeat with socked feet
Inked Static Sock Foot Impressions

• Have subject re-ink their socked feet, sit in chair, and while feet are raised place legal size paper beneath feet.

• Have them stand up, then sit back down, lifting feet straight up, and take several sets of static impressions this way.
Comparison Process

• **Analysis** of the Unknown – includes tracing what is visible and bench notes.

• **Comparison** using side by side and superimposition of what you see in the unknown over the known.

• **Evaluation** of similarities and dissimilarities → **Reporting of Opinion**

• **Verification** by another qualified examiner.
ANALYSIS

• Recording the observable factors:
  – Substrate
  – Medium
  – Development method
  – Distortion present
  – Visible detail recorded in impression through photography, tracings, notes.
Shoes Are Cut Apart. Possible Damage to Uppers
Insoles are photographed. Various lighting techniques used, determined by visibility of weight bearing impressions.
Evaluation of Differences and Similarities

Questioned  |  Suspect 1  |  Suspect 2

2. Left Insole
Case Example: R26
Developed With Finger Print Powder on Bathroom Floor
R26 Tracing Over Right Known Barefoot Walking Impression.