Key Concepts of Chapter 13:

Introduction

- Use of fingerprint powders is most common form of latent print development
- More prints developed at crime scenes with fingerprint powders than all specialized chemical processes and forensic light sources combined
- Not every agency has resources to use every process available
- Use of every possible process would not be needed or warranted
  - Example: Use of traditional fingerprint powders on non-porous surfaces in most cases provides satisfactory results
- Determining best process or processes used is influenced by:
  - Past experience of the examiner
  - Available resources
  - Consideration of crime being investigated
- Concept
  - Latent print powders adhere to perspiration, oils, and other moisture or substances present in the latent print and left on surface of object touched
  - Print becomes visible as powder adheres to print residue
  - Powders are primarily used on non-porous objects
- The Fingerprint Kit
  - Contains necessary items to develop and preserve print evidence
    - Various types of fingerprint powders
    - Assortment of brushes for application of fingerprint powder
    - Transparent lifting tape of varying widths or lifters in varying sizes

Latent Fingerprint Kit

- Backing Cards
  - Black and/or White to contrast powder used)
  - Prints are placed on mounting cards for preservation
- Fingerprint Powder
  - Come in a variety of colors depending on material used to make powder
  - 2 most commonly used powders:
    - Black (lamp black)
    - Gray or silver (aluminum)

Fingerprint Powders

- Different powders have different sensitivity or ability to adhere to latent print moisture
  - Aluminum powder adheres better than black powder
    - Recommended for slick non-porous surfaces such as clean glass or shiny metal
  - Black powder less sensitive and preferred when surface is tacky
    - Grimy surface or primer gray auto body
- Color of background surface may also influence type of powder used
Contrasting color powder enables better viewing of prints during development process

- Fingerprint powder is applied with a brush
  - 2 most commonly used brushes:
    - Camel hair
    - Fiberglass

### Lifting Latent Fingerprints
- Print usually lifted with transparent lifting tape and placed on a contrasting backing card for documentation and preservation
  - Latent prints developed with gray or silver powder would be placed on a black backing card
  - Latent prints developed with black powder would be placed on a white backing card
- Experience of latent print technician invaluable during lifting process to avoid lost or damaged evidence
- Developed prints often photographed on object before lifting off object

### Fingerprint Powders
- Magnetic powder
  - Includes small iron particles
  - Available in different colors
  - Developed for use on semi-porous surfaces
    - Painted wood or glossy cardboard
  - Applied to surface being processed with a magnetic wand instead of a brush
  - Works well on many types of surfaces
  - One of the most valuable powders in the fingerprint kit
- Fluorescent powders
  - Available in conventional and magnetic variations
  - Allows visualization of prints on a variety of backgrounds when exposed to a forensic light source
  - Developed prints can be photographed or lifted as with traditional powders

### Use of Powders
- Fingerprint investigator must determine best type of powder to use on a surface based on his/her training or past experience with that type of object or surface

### Latent Prints as Evidence
- Once located, evidence prints are collected, preserved, and documented
- Most latent prints are developed with fingerprint powder
- Prints are lifted from object with fingerprint tape
- Fingerprint tape then placed on backing card labeled with the following
  - Print location
  - Date
  - Case information
  - Technician’s name
- Any other identifier
- Documentation of evidence at the time of lifting is important for integrity
- Visible prints should be photographed on the object
  - Prints in blood, grease, or plastic impressions pressed into surfaces
- Latent prints that may be lost or destroyed during lifting process should be photographed in place prior to lifting
- Some texts and policies require photography of all prints in place prior to lifting
- Prior to advent of lifting prints using tape or other types of lifters, all evidence prints used to be preserved by photography alone
- Today, a majority of agencies do not photograph every evidence print before lifting

**Fingerprint Photography**
- Close-up photography used to preserve impression type evidence such as fingerprints
- Close-up photographs should be taken with:
  - Close-focusing or macro lens
  - With and without a scale
    - ABFO type scale or ruler is the best
  - Tripod or a copy stand
  - High contrast black and white film

**Fingerprint Photography**
- Film plane should be parallel with object being photographed
- Identifying information should be included in photograph
- Most close-up photographs of evidence items will require specialized lighting techniques
  - Oblique lighting, bounce lighting or direct lighting
- Fingerprint images can also be captured and preserved using digital photography
- Digital scanners can be used for ninhydrin prints on paper
- SWGFRAST recommends capture of friction ridge impressions (color or grayscale) at 1,000 ppi or higher resolution
  - Color digital imaging – minimum of 24 bits
  - Grayscale digital imaging – minimum of 8 bits

**REFERENCE**