

9.22.000 FINGERPRINTS AS EVIDENCE

9.22.005

INTRODUCTION: 10/94

Fingerprints are perhaps the most common form of physical evidence and one of the most valuable. They relate directly to the ultimate objective of every criminal investigation – the identification of the offender. With the Automated Fingerprint Identification System (AFIS), latent prints can be searched and potential suspects can be found even though there were no witnesses to the crime scene. When an unknown person is identified through AFIS, the number of investigatory hours are dramatically reduced.

Although the primary responsibility for specialized evidence collection rests with crime scene specialists, major crime detectives or lab personnel, it is incumbent upon the patrol officer to be familiar with fingerprints and their uses as physical evidence. Fingerprints of the offender are frequently found at the scene of a crime, and they may take more than one form. However, in all cases, the prints are fragile and susceptible to complete destruction by the first careless act. They are also, in many cases, difficult to find. This bulletin discusses the basic requirements for conducting a successful search for fingerprints together with the means of recognizing, lifting, and preserving them for later analysis.

9.22.010

DEFINITION OF FINGERPRINTS: 10/94

On the underside of your hand and the soles of your feet the skin is rough, corrugated, and very different from the skin which covers the rest of your body. This skin is known as friction ridge or papillary skin. These ridges form patterns in the shape of loops, arches, and whorls. When this pattern, formed by the ridges, is transferred to an object, the image left behind is known as a latent print (finger, palm, foot, or toe print).

1. A known or inked fingerprint is produced by a procedure in which the fingers of a person are covered with a thin layer of black printers ink.
 - a. The inked fingers are then rolled across a white card which has numbered blocks for each finger.
 - b. The pattern of each finger is transferred to these blocks forming a permanent record of that person's fingerprints.
2. An unknown or latent print is an impression left by chance and requires development to make it visible. The perspiration and oils clinging to the tops of the friction ridges are transferred to an object when it is touched, thus forming an outline of the fingerprint pattern.
3. Fingerprints contaminated with such material as oil, dirt, blood, and grease are usually visible and are known as patent prints.

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BASIS OF IDENTIFICATION OF FINGERPRINTS: 10/94

1. The basic factors are that fingerprint ridges are permanent and unique. Identification is based on the following criteria:
 - a. The relative position of the characteristics to each other.
 - b. The uniqueness of the characteristic.
 - c. The number of characteristics.

2. There is no specific number of characteristics required.
 - Identification is based on all three criteria
3. Identification can be made on a latent as small as the end of an eraser on a pencil.
4. As a general rule, if the investigator develops an area which appears to have several ridges, regardless of the size of the areas, it should be lifted marked and submitted.

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LIMITATIONS OF LATENT PRINTS: 10/94

1. Even though latent prints are invaluable in the course of investigative work, there are certain limitations as to what information these prints can provide, fingerprints cannot:
 - a. Determine the age of the latent print.
 - It is possible to estimate the age of the print in relation to certain events. (i.e.) prints appearing on an object thoroughly cleaned during a recent housecleaning can be dated as occurring after that event.
 - b. Determine, the age or sex of the person leaving the print.
 - c. Identify the race of the person leaving the print.
 - d. Determine occupational groups.

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CONDITIONS WHICH AFFECT LATENT PRINTS: 10/94

1. The quality of latent fingerprints is affected by such conditions as:
 - a. Receiving surface material on which latent is placed.
 - b. The manner in which the print was transferred.
 - perspiration
 - oils
 - blood
 - etc.
 - c. Weather conditions.
 - d. Physical or occupational defects of the person transferring the print.
2. The nature and the condition of the surface on which the latent print is deposited are very important.
 - a. Shiny or smooth surfaces will generally retain clean, clear fingerprint detail.
 - b. Dull or porous surfaces generally do not retain quality fingerprints, but should be collected and submitted for processing by experts.
 - c. Paper is an excellent material on which clear latent prints can be developed.
3. The weather affects the latent print in a number of ways.
 - a. The print may be dried out or washed away.
 - b. The more oil that is deposited with perspiration, the longer the print will last during inclement weather.

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RESPONSIBILITY OF THE OFFICER COLLECTING FINGERPRINTS: 10/94

1. Latent prints are valuable evidence and every effort should be made to recover them. The investigator is strongly urged to search for and collect prints regardless of any apparent problems or time constraints.
2. It is imperative that the crime scene investigator make a thorough search of all surface areas in and around the scene of the crime that have the potential of retaining finger or palm prints.
 - a. Particular attention should be paid to the less obvious places such as the underside of table tops and dresser drawers, the surface of dinner plates, filing cabinets, the backs of chairs, rear view mirrors (both the glass and the frame), and the trunk lids of automobiles, toilet lids and seatbelts.
 - b. Objects that are quite likely to be touched, such as door knobs or telephones, should be processed.
 - Victim prints are needed for elimination on these heavily handled objects.
3. The investigator should not assume that the offender took precautions against leaving prints or that he wiped off those he did leave.
4. It is helpful to attempt to view the scene as the criminal did. Such conditions as time of day, weather, and physical layout may suggest that certain surface areas should be closely examined.
 - a. In conducting the examination for latent prints in a burglary case, for example, it is suggested that the investigation begin at the point of entry.
 - b. Whatever the nature of the crime and the particular circumstances, its reconstruction by the investigator is intended to give practical direction to the search.
5. Valuable aid in obtaining latent print leads may be solicited from a person who is familiar with the usual physical layout of the crime scene, such as the owner of the building or the usual occupant of an apartment.
 - a. That person should be allowed to observe at least a part of the preliminary investigation and be encouraged to:
 - Point out items which appear out of place.
 - Identify objects that may have been brought in by the suspect.

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PRINTS WHICH REQUIRE NO FURTHER DEVELOPING: 10/94

There are two basic types of patent prints that the crime scene examiner will likely encounter which do not need developing.

1. The first of these is the visible type created after the suspect's hand has come in contact with blood, ink, paint, grease, dirt, etc., and the print transferred to some surface area.
 - a. Prints made from these substances are usually distinct and should stand out to the investigator.
 - b. The investigator should photograph the latent print.
 - One (1) to one (1) including a scale.

- c. The surface on which the print rests must then be carefully packaged and transported to the Latent Laboratory.
 - Common sense must rule the decision as to just how much damage is justifiable in collecting items or surface areas where prints are found.
2. The second type of print which requires no further developing is an impression in a soft substance such as putty, clay, or fresh paint.
 - a. Photograph the impression again at one (1) to one (10).
 - b. Transport the object or a section containing it to the crime laboratory.
 - c. If a physical transfer of the impression is not possible, it should be sprayed with shellac and a cast prepared of silicone-rubber.
 - The cast is sent to the laboratory in place of the actual imprint.

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METHOD OF DEVELOPING FINGERPRINTS: 10/94

1. The types of surfaces from which latent prints can be lifted fall into two broad categories:
 - a. Those which are hard, smooth, shiny and nonabsorbent. (glass, tile, varnished wood etc.)
 - Process these items with black powder and a brush.
 - b. Those which are dull, porous, and absorbent. (paper, unfinished wood, cardboard, etc.)
 - These items should be packaged and sent to the Lab to be processed with chemicals.
2. To determine in which category a given surface belongs, it is useful to think of what would happen to a drop of water if it were placed on it.
 - a. If the water would bead up (i.e. plate glass) the surface is hard, smooth, and nonabsorbent.
 - b. If the water would soak in, as on cardboard, the surface is absorbent.

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DEVELOPING PRINTS ON NONABSORBENT, HARD, SMOOTH SURFACES: 10/94

1. Prints made on nonabsorbent, hard materials will remain entirely on the surface of the object in the form of a delicate liquid or semi-solid deposit. The print, mainly consisting of oil and water, expands upward from the surface which makes an ideal adhesive base of fingerprint powder. As a general rule, it is always better to develop prints on a nonabsorbent surface and lift them in the field to prevent damage during transportation.
2. The type of powder and brush (i.e., magnetic or bristle) is usually up to the individual processing the crime scene.
3. Before developing the print, the fingerprint brush should be cleaned and the bristles separated by rolling the handle rapidly between the palms of the hands and letting the bristles spread out naturally.

4. Before opening the fingerprint powder container, it should be turned upside down and shaken vigorously to loosen the powder.
5. Apply a small amount of fingerprint powder to the area to be examined, using the brush provided in the fingerprint kit.
 - a. Too much powder will result in an overly darkened print in which points will be difficult to identify.
 - b. If you get grease or oil on brushes, discard and get a new brush.
6. The entire area to be processed should be covered using light, even strokes until some ridge detail begins to show.
7. As the pattern of the ridges becomes visible, the brush strokes should be directed to follow the contour lines.
8. After all of the details of the print have been developed, the excess powder should be removed by gently brushing or blowing it away.
 - Too much brushing will erase the print.
9. The powder should be allowed to adhere to the wet, tacky area of the latent print, but not to the surface on which the print is deposited.
10. Pull out enough tape to cover the area to be lifted
11. Place the tape over the print and secure the loose ends of the tape beside the print to be lifted.
 - a. If the developed latent print is larger than the width of the tape, it still may be lifted by placing one strip beside another.
 - b. Allow about ¼ inch overlap with each additional strip until the desired area is covered.
12. Carefully smooth down the tape over the print to force out all the air bubbles.
13. Once the tape has been secured, one of two procedures may be followed.
 - a. If the surface would be destroyed by removing the tape, the tape may be left on and the entire object submitted to the laboratory for examination.
 - b. The print may be removed by pulling up on the tape and secure it to a fingerprint card.
14. Occasionally wet items, such as beer cans or glasses that have condensation on the outside of them, or automobiles which have been covered with dew, must be processed for prints.
 - a. These items should first be allowed to dry under natural conditions in a sheltered area.
 - b. Heat lamps or artificial heat of any kind be used to warm the room but should not be used to dry an object.
15. The investigator may encounter a surface, such as glass or polished metal on which the print can be readily seen, but any effort to develop it with fingerprint powder will damage the print.
 - a. Photographs should be taken before any further attempts at processing are made.
 - b. If a camera is not available, it may be possible to rejuvenate the print by blowing on it several times and allowing the condensation on the surface to evaporate naturally.
 - c. The print should then be powdered and the lift made.
16. Items exposed to freezing temperatures should be allowed to warm up and dry out naturally before any attempt is made to develop latent prints.

17. If in dusting an area only one print appears to have ridge detail and the others around it are smeared so that no ridge detail remains, the smeared ones should also be included in the same lift.
 - a. Even though the smeared prints cannot be identified, they can assist the lab specialist in determining the relationship of the identifiable latent to the whole hand.

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DEVELOPING PRINTS ON ABSORBENT, POROUS, SURFACES: 10/94

1. No attempt should be made by the investigating officer to develop latent prints on absorbent surfaces with fingerprint powder.
2. Evidence such as pieces of paper, cardboard, etc., should be handled carefully by the edges, placed in a container, and submitted to the lab for chemical processing.
3. After the items are collected, the container should be sealed and marked with all required data and also specially marked "TO BE PROCESSED FOR LATENT PRINTS."

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MARKING AND IDENTIFYING FINGERPRINT LIFTS: 10/94

1. After a latent print has been developed, lifted, and placed on a card, it is necessary that the card be properly identified.
2. Information recorded on the card shall include the:
 - a. Name and serial number of the investigating officer.
 - b. Case number.
 - c. Date.
 - d. Title of the case.
 - e. Victim's name.
 - f. Exact place of the lift and the type of object lifted from must be placed on the back.
3. In describing the exact place where the lift was made, it is sometimes convenient to draw a simple sketch of the object.
 - a. This sketch should be made on the fingerprint card.
 - b. The inclusion of corresponding small arrow showing which way is up or top, on both the lift and the sketch is necessary in orienting the exact placement of the fingerprint.
 - c. Always state if the lifted print is from the inside or outside of a window of a car, building, etc.
4. If prints opposed to each other are lifted, such as on both sides of a piece of broken glass, a notation should be made on the fingerprint card.
 - a. Try to determine from rain spots and dirt which was the outside when dealing with window glass.

9.22.060

VICTIM ELIMINATION PRINTS 10/94

1. Elimination prints are a set of fingerprints of victim or anyone who has legitimate access to the area. These prints are needed to omit latent prints of victim(s) and leave only the potential suspect prints to be examined.
2. Elimination prints are used only for that case and are not put in the AFIS database or compared with any other case.
3. There are two accepted ways to obtain elimination prints.
 - a. The conventional procedure in which the fingers of a person are covered with a thin layer of black printers ink. The inked fingers are then rolled across a white card which has numbered blocks for each finger. The pattern of each finger is transferred to these blocks forming a permanent record of that person's fingerprints.
 - b. Have the victim cover the ends of their fingers with a thin layer of hand lotion or cream. The moistened fingers are then rolled across a shiny white latent lift card. The pattern of each finger is transferred to the card via the hand lotion. To make the print visible the card must be dusted with Magna Powder. Once the prints are visible a protective layer of clear tape is placed over the prints.
 - If this method is used the officer must designate the number of each finger, numbering one (1) through number ten (10).
 - Starting with the right thumb number one (1) through the right little finger number five (5).
 - The left thumb number six (6) through the left little finger number ten (10).
4. The elimination cards must be properly identified. Information on the card should include:
 - a. Victim's name.
 - b. Case number.
 - c. Officer's name and serial number.
 - d. Date.
 - f. Label the card "ELIMINATION PRINTS"