WITHOUT A TRACE
A Commonsense Guide to Forensics

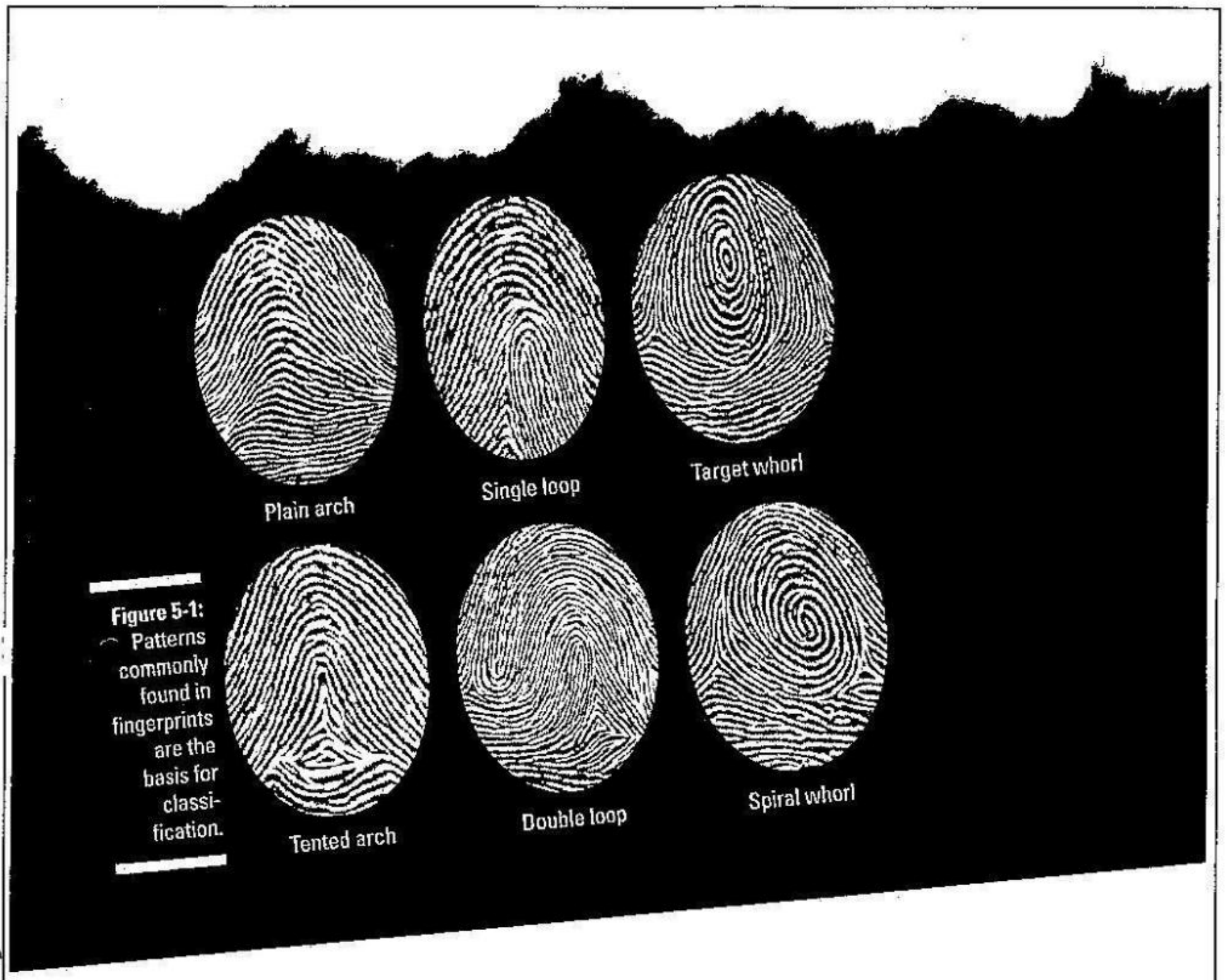

Figure 5-1: Patterns commonly found in fingerprints are the basis for classification.

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SHOEPRINTS

Shoes are often underestimated as sources of forensic evidence. As with fingerprints, shoe *prints* can be left behind on hard surfaces such as linoleum, marble, wood, glass, paper, pavement, etc. These prints result from dirt, mud, grease or oil that may be on the treads and that are then transferred to the surface. Police can photograph these or lift prints using various methods. Shoe *impressions* can be left on soft surfaces such as dirt, mud, sand, or snow, which can be photographed and/or casts made.

From shoe prints, investigators can identify shoe size and the manufacturer. They can also estimate a person's stride, height & weight. Although shoes may be mass produced in factories, they also have small defects and markings which make each shoe unique. These unique features increase as the shoe is worn and small scratches, nicks, cuts or gouges occur on the tread (wear and tear). A shoeprint can then be used to positively identify a certain shoe as having been at the scene of a crime. Investigators typically concentrate their search for shoeprints at the points of entry & exit. Shoes can also leave or pick up trace evidence (see below).

The best defense against leaving shoeprints is to acquire shoes specifically for an action and not to use them for any other purpose (i.e., do not wear them around your residence as they will pick up traces). After an action, these shoes should be disposed of/destroyed. For low-level actions, thick socks worn over the shoes, or cloth tightly secured over the shoe, can be used to obscure the shoeprint left behind. The sock or cloth should then be disposed of/destroyed and the shoes thoroughly washed to reduce traces.

GLOVE & CLOTHING PRINTS

The most common fabric impressions come from gloves. Like your fingertips, gloves can pick up grease, dirt, & grime, and then deposit either patent (visible) or latent (hidden) prints on surfaces. These can then be compared with a suspect's glove.

Leather gloves tend to crease, wrinkle, & crack with use. These defects may make a unique print. Gloves made from cotton & other fabrics also can leave behind an imprint of their weave patterns and any pulls, snags, tears, & other imperfections that show up in the print may make it possible for a match to be made.

Rubber or ***surgical*** gloves will have finger & palm prints inside. Like shoes, gloves should be destroyed after a high-level action, and not worn for any other purpose.

Other fabrics, such as ***clothing***, may also leave impressions. When blood, oil, grease or dirt get on clothing, they can be transferred by contact to a wall or other object. Fabric impressions from the clothing of hit-and-run victims have been found in the dirt & grease on car fenders (*Forensics for Dummies*, p. 112).

TOOL MARKS

Although they may look identical, 2 tools produced by the same manufacturer bear tiny variations & defects that can make them as unique as your fingerprints. After they've been used, tools develop nicks, scrapes, striations, and other marks that further distinguish them as individual tools. These minor, even microscopic defects are unique characteristics that may be recognized whenever the tools are put to use.

Marks found on and often transferred from tools are classified into the following 3 categories:

Indentation Marks- occur when the tool is pressed into a soft surface such as window caulking, thick paint, putty, mud, etc.

Sliding Marks- occur when a tool slides or scratches across a surface, i.e., chisels, screwdriver, crowbar, etc., may produce sliding marks when wedged into a door jam or window. They can leave behind patterns of lines or striations in wood, metal, paint or other materials. Slide marks vary from tool to tool and can reveal manufacturing and use defects. These can be distinct enough to match a tool belonging to a suspect as having been used at a crime scene.

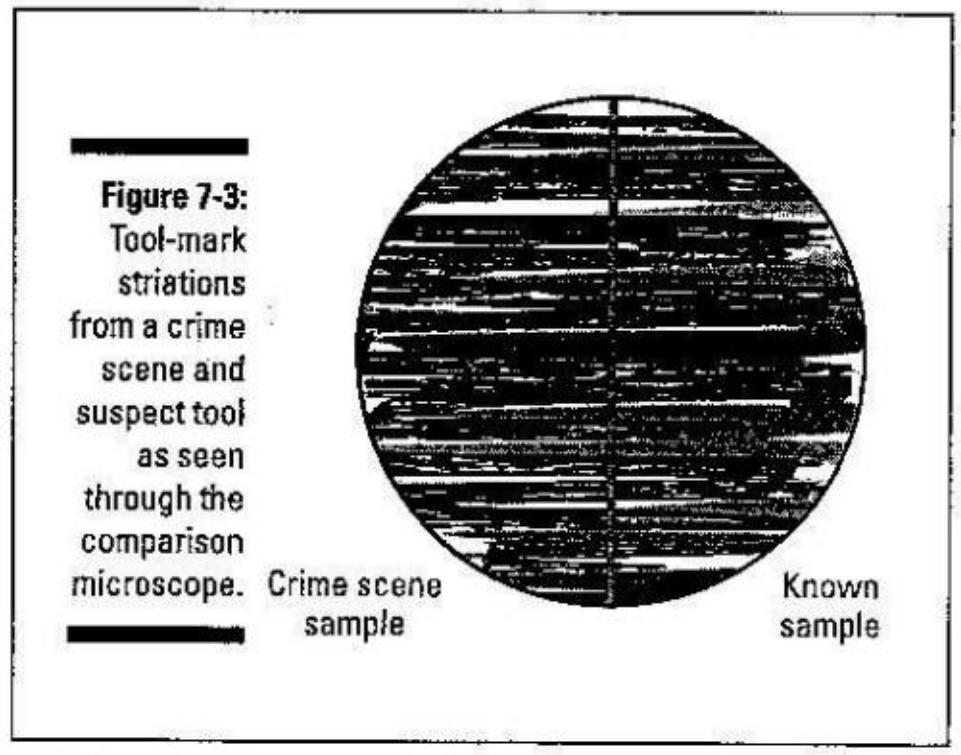


Figure 7-3: Tool-mark striations from a crime scene and suspect tool as seen through the comparison microscope.

Cutting Marks- left by tools that slice through materials. Wire & bolt-cutters leave behind lines & striations along the cut edges of wires & bolts they've been used to cut. The best surfaces to use for comparison are soft metals such as copper & lead, because they tend to retain the microscopic detail of the cut marks left by the tool's blade (*Forensics for Dummies*, p. 110).

With newer tools used in low-level actions, the cutting edges can be filed or re-sharpened to remove cut marks. Older tools that have been well-used may be too badly pitted & scarred to re-work. After any high-level

action, tools used should be destroyed/disposed of, and should not be handled except with gloves. To remove fingerprints from metal tools, scrub surface with steel wool and re-paint.

A tool used as a weapon, including ***wooden batons*** or ***baseball bats***, also leave behind & pick up marks & traces. When a wood baton is used to strike a person on the head, for example, it can leave behind wood splinters & fragments. It may also pick up hair, skin, blood or even bone fragments, as well as be indented at the point of impact. Wood fragments recovered from a victim's head can be analyzed to identify the type of wood and to match it to a piece of wood found on a suspect.

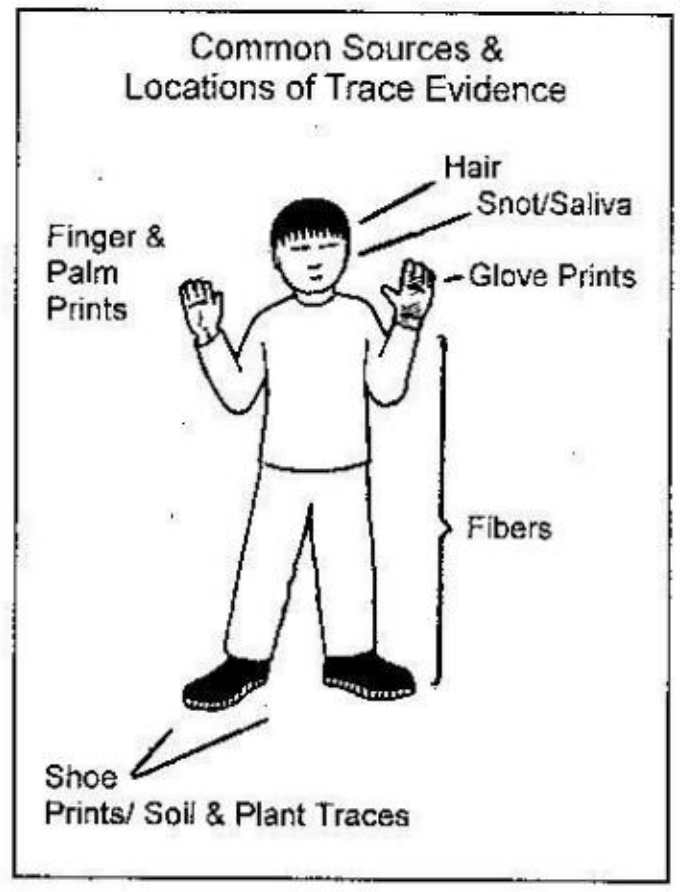
Other tools include ***tape*** and ***rope***. The surface of tape can hold fingerprints as well as trace evidence (inc. fibers, hair, dust, etc.). Both tape & rope samples found at a crime scene can be linked to rolls of tape or rope found in a suspect's possession and should therefore be treated in the same way as other tools (i.e., destroy/dispose of tape & rope used in an action).

TRACE EVIDENCE

From the hair that falls off your head to the carpet fibers that you track in on the soles of your shoes, trace evidence is any very small physical material that can be transferred from person to person or between a person and a crime scene. Hair, fibers, pieces of glass, chips of paint, and dirt or plant materials, are examples of trace evidence frequently found at crime scenes.

Trace evidence creates links between suspects, places & objects. In fact, trace evidence often is the only evidence that connects the suspect to the crime scene. A variety of methods are used to analyze trace evidence, including specialized microscopes, electron scanners, x-ray spectrometers, infrared, lasers, etc.

Clothing, carpet, bedding, towels, and thousands of other things that you use every day are composed of various fabrics. Because they're so common and come in such a wide variety of types, fibers from these fabrics are an important type of trace evidence. Like hair, they're easily shed, transferred & transported. They stick to skin & clothing & become entangled in hair.



To degrade trace evidence, new (or secondhand) clothing, gloves & shoes should be destroyed/disposed of as soon as possible after an action, and worn for no other purpose. The top of the head should be covered (cap, bandana, hood, etc., which should also be disposed of). Thoroughly wash your hair & body. Tools should be disposed of (for low-level actions, wipe down with rubbing alcohol, or scrub with warm soapy water).

DNA EVIDENCE

DNA evidence is also referred to as 'genetic fingerprinting'. Virtually every human cell contains DNA (deoxyribonucleic acid) which carries the complete human genetic code. Researchers can disassemble DNA & examine it for microscopic variations that make humans unique, thereby establishing identity. DNA evidence is most often in the form of physical matter left behind by an individual and can include hair, blood, semen, skin, spit, sweat, tears, earwax, urine, feces, and snot (bodily substances). DNA samples can be obtained from cigarette butts, gum, spoons, tissue, cups, or even the inner part of a hat or wristwatch.

To prevent DNA evidence being left behind, do not spit, urinate, leave cigarette butts or any other object that comes into prolonged contact with your body. If you cut yourself on broken glass or other objects it will leave behind samples for DNA testing and every effort should be made to destroy or dispose of these traces.

SOIL & PLANT TRACES

Soil is not simply dirt. It's a complex mixture of minerals, plant and animal matter, as well as tiny particles of manufactured materials such as glass, paint, concrete, etc. The contents of soil vary greatly from one region or locale to another and can assist investigators in determining if a suspect has been at a crime scene through either samples left or picked up.

Plant materials also have great forensic significance. They're found in soil samples, on corpses, clothing, flooring, car mats, tools, and many other places. Investigators often look for leaves, stems, pine needles, bark, flower petals, seeds, and pollen, because various plants are native to different areas and materials from them can help determine the origin of a sample.

Through analyzing soil & plant traces found at a crime scene and on a suspect's clothing or tools, it is possible to determine that a suspect was in a certain place and even at a certain time of year. For example, if a person enters a construction site and commits arson, there will be soil traces on her/his shoes & clothing that

When a firearm is discharged, particles of gas & gunpowder are released that can lodge themselves in a person's clothing, skin, hair, etc. Special chemical sprays can be used by police to determine if a suspect has recently fired a firearm. When sprayed on a suspect's hand it will show up as a coloured dye if s/he has in fact recently fired a weapon.

To degrade forensic evidence resulting from firearms, the weapon itself should be disposed of/destroyed after use. The weapon & ammunition should not be handled except with gloves. When a firearm is discharged, the shooter should wear gloves and wash thoroughly as soon as possible afterwards. When practical, shell casings should not be left at a crime scene (a cage or trap to capture ejected casings can be devised as long as it doesn't interfere with the operation of the weapon).

Serial numbers are frequently removed by grinding or filing them off the weapon. However, using new technologies, these serial numbers can be recovered. This is because when the numbers are stamped onto the weapon they impress themselves down through the metal, changing its structure, which can be recovered even after the surface has been filed down.

VIDEO SURVEILLANCE

Due to widespread use of video & Closed-Circuit Television (CCTV) for surveillance purposes, they are an important form of forensic evidence that can be used to identify individuals & vehicles and link them to a crime scene. This is especially true in urban areas, where tens of thousands of video cameras record people walking down streets, entering stores or malls, using bank machines, on transit systems, etc.

By analyzing surveillance footage, it's possible to identify an individual or vehicle either at a crime scene or moving to/from it (tracking). Cameras used for traffic control, as well as those used in store doorways or alleys, could provide police with enough information to identify a vehicle or suspect. Even if a disguise is worn during the action, you could still be placed in the vicinity by video surveillance along the routes of entry/exit. These routes should be checked beforehand to determine if it is necessary to wear a disguise en route or exiting the site of an action.

Video surveillance cameras can also be concealed and can be as small as a quarter, requiring only a small pin-hole to view an area. Security cameras may also have infrared capability, so darkness itself does not mean you are not under video surveillance. Therefore, when carrying out actions, the potential for surveillance of a target is always possible and disguises should be worn, even when cameras are not readily visible.

Purchasing Tools: when special tools or equipment are used in an action, it's possible that investigators will canvas local stores to question clerks, review video surveillance or credit card purchases, etc., to compile a list of suspects. When buying tools, pay in cash and purchase from a store far away from your residence, or in another town. If possible, acquire tools long before any action is to occur. Wear some disguise to limit video surveillance but avoid looking suspicious.

Purchasing Fuel: avoid gas stations near or en route to your target as these will be among the possible sources of forensic evidence investigators may check. You and your vehicle will be subject to video surveillance, and any credit/debit cards you use will record your personal identity, date & time of purchase, and quantity of fuel.

COMMUNIQUES

Communiques are public statements claiming responsibility for an action on behalf of a certain group, sent to corporate and/or alternative media sources. In some cases it may not be necessary to issue a communiqué as the action will speak for itself. By releasing a communiqué, you help police narrow their search down to a certain group or movement, although at times this risk may be necessary for practical or propaganda purposes.

Communiques are usually written statements, sometimes with photographs or graphics. For investigators, communiqués can be sources of forensic evidence depending on how they are produced & distributed.

Before computers, communiqués were either handwritten, typed, or made of cut-and-paste letters from magazines. These methods produce plenty of trace evidence for investigators. Handwriting can be analyzed and comparisons made to suspects. Typewriters leave unique impressions similar to tools. Cut-and-paste methods can contain hair or other trace evidence. Paper can be analyzed for fingerprints & traces (inc. impressions on pages). Photocopiers can also leave unique traces & impressions on paper. Envelopes used to mail a communiqué can contain fingerprints, DNA from saliva, as well as postage information showing the area from which it was mailed.

Today, communiqués are more likely produced through computers, either through printed statements or email sent to media sources. As with photocopiers, it is possible for investigators to match documents to certain laser printers. Emails can be traced to particular computers & phone lines.

To reduce forensic evidence from communiqués, statements to be mailed should be photocopied at a public location which you do not frequent, and they should not be handled except with gloves. When making a xerox copy, you can place the statement between two pages and thereby handle it without wearing gloves.

Ensure the original is not left behind. Envelopes should not be handled except with gloves, and the adhesive flap & stamp wetted down with a sponge or cloth (not licked). The letters should then be dropped in mailboxes far away from your residential area (or even in another town).

When emailing communiqués, do not use your personal computer or any computer which you or others frequently use. Go to an internet café out of your area, concealing your identity as much as practical as many stores now have CCTV surveillance. As well, investigators may proceed quickly to the source of any emails in order to question store owners and/or review any surveillance footage in order to identify the sender of a communiqué.

Voice Prints: with new technologies, an individual's voice can now be analyzed and matched to a suspects. Phoning in claims of responsibility for an action should not be done, especially since many media outlets, emergency services, etc., now routinely record telephone calls (although statements can be 'cut-&-paste' from audio recordings of TV news, movies, etc. Such a recording should be destroyed after it is sent).

Video Communiques: producing a communique through video requires a secure, non-descript background and careful attention to disguises worn by those filmed. Voices must be electronically altered (or 'cut-and-paste' from audio recordings), and all tapes/discs handled only with gloves. Any digital files resulting from editing should be deleted from the hard-drive and you may require technical assistance to do this.

GATHERING INFORMATION & COMMUNICATIONS

Although trace evidence is mostly concerned with physical matter found at a crime scene and/or on a suspect, another way trace evidence can be produced is through telecommunications inc. phones, cells, computer-internet, etc. that can link the gathering of information on the target of an attack with an individual. Who you communicated with, from which location, at what time, etc., can also be determined based on digitized records. This is a rapidly growing area of forensics with police, government, & corporations working together to develop new & better ways of identifying suspects, tracking, & surveillance of telecommunications.

Gathering Info: When you use your personal computer on-line to gather information, it records all the searches & web-sites you've visited, on the hard-drive. In some cases, these records are difficult to remove and can require technical expertise. In addition, your phone company may have a digital record of all your phone calls and be able to track who you've called as well as internet use. For these reasons, gathering info on targets should never be done from your personal computer or phone (use internet cafes or other public computers in another area).

Surveillance: Surveillance of telecommunications is now widespread & easy thanks to new computer & digital technologies, as well as the number of devices used (i.e., cell phones). If you have been involved in resistance organizing, or have been associated with those who are, you may be a target of surveillance. You should therefore not discuss any aspects of an action over any form of telecommunications.

Secrecy: Another area of communications security is the ability to keep quiet about 'illegal' actions. Many criminals become suspects & targets of investigation because they cannot resist telling others due to ego, alchohol, drugs, mental illness, etc. Avoid security risks and follow the Need-to-Know-Only rule: only those involved in the action need to know about it.

DISPOSING OF/DESTROYING CLOTHING & TOOLS

In order to remove as much trace evidence as possible, especially for high-level actions, all clothing (inc. gloves, shoes, masks) and tools should be disposed of/destroyed as soon as possible after the action. Don't worry about the cost of replacing these items: freedom is priceless! There are three primary ways to dispose of/destroy clothing & tools: fire, immersion in deep water, or burying.

Plans & preparation for disposing of or destroying these items should be made prior to the action. If you plan on burning your clothes & tools, have a fire in some isolated area ready to burn. It must burn hot enough & long enough to reduce clothing, shoes & gloves to ashes, and to destroy traces on tools. Consider burying burned tools, or dropping them in a deep body of water, so that they cannot be found.

To dispose of tools in deep water, have a location selected beforehand at which you will not be observed. Be aware of low-tides or popular fishing & swimming areas. Burying items should also be done in an area at which you will not be observed. Be careful when digging the hole. Remove the top layer of soil and set it on a plastic tarp (keep it intact as you will replace it). Dig the hole and remove the dirt, distributing it in areas away from your digging site (i.e., in rivers or streams, under fallen trees, etc.). Once the items are buried, replace the top layer and return the area to its previous condition. Be aware that burying or dropping items in water will not remove fingerprints and that trace evidence can persist for a long time (which is why burning items is recommended, especially metal tools that are later disposed of).

WITHOUT A TRACE

Balaclava, gloves, clothing, & shoes limit DNA & other trace evidence.

All articles & items burnt after action (inc. packs & tools).

Wash/shower as soon as possible after action.

Do not wear/use until action, keep in sealed bags.

Do not wear/handle without gloves (inc. buttons, zippers, etc.).