


Springer's Forensic Laboratory Science Series

Paul R. Laska

Interface

A Guide for Professionals Supporting
the Criminal Justice System

 Humana Press

Springer's Forensic Laboratory Science Series

Series Editor

Ashraf Mozayani, Ph.D.
Harris County Medical Examiner's Office
Houston, Texas, USA

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Paul R. Laska
Forensic Consulting, Inc.
Palm City, FL 34990
USA
prlconsults@gmail.com

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Preface

The past 30 years have seen tremendous changes in the roles of the various professionals who comprise the public safety realm. These changes especially affect the nonlaw enforcement components. Where “first aider” ambulance drivers had little interface with patients, EMS professionals have extensive interchange with their patients. Many jurisdictions see either fire departments routinely running with, and assisting, EMS responders, or absorbing EMS into Fire-Rescue Departments, with the assigned firefighters encountering the same conditions as their EMS counterparts.

The growth of heavy rescue and technical extrication teams has also changed the role of the fire service, as professionals in these specialty fields often interface with law enforcement on a frequent basis. Their role in rescue often makes them the only knowledgeable witnesses to a scene prior to its being greatly altered by rescue activities.

Similarly, the advent of hazardous materials (haz-mat) teams has impacted the relationship of public safety responders to the criminal justice system. With the parallel growth of environmental investigations, haz-mat personnel may either be complaining witnesses to criminal incidents, or provide support services to the investigators. Clandestine drug laboratories (clan-labs) and explosives laboratories fall within the response purview of haz-mat teams, and deeply intertwine their operations with the investigative process and the bomb squad response. The “war on terrorism” has further involved the haz-mat unit into bomb and weapon of mass destruction (WMD) response protocols.

Public health services, formerly considered a tangential component of the public safety family, have now been incorporated into the mainstream. This is especially true as the threat of chemical, biological, or radiological terror extends requires the medical and environmental capabilities of the health department to coordinate the treatment of victims, control of disease spread, and indeed the analysis of materials suspect of being hazardous, especially biologically.

The medical field, in particular nursing, finds itself with much greater involvement in the investigative process than ever. The expanding role for forensic nursing is a development that both affects the need for the nurse or other medical professional to be much more conversant in criminal justice matters, and also bodes well for the improvement of relations between the medical and law enforcement fields.

Emergency managers have also become a key component in these activities. Where once an operational EOC (emergency operations center) included a chair for the law enforcement representative who was merely a conduit for requests for service or a convenient location to park complaints, the new relationships have made the EOC an important player in the overall management of the situation. Indeed, there has been a growing trend in many jurisdictions for law enforcement to establish an emergency management section within its walls, or to even absorb the emergency management function from the local municipal or county government.

Areas such as public works, utilities, engineering, and many other professional fields find themselves much more closely involved with the criminal justice system. As rescue, recovery,

and investigation become much more tangled than previously, there is much greater interplay among these groups and the law enforcement field. Further, their expertise finds itself called upon to an every growing degree to aid investigators in understanding where evidence is leading them, and to aid all facets of the court in coming to educated decisions.

With these new relationships has come a need for public safety personnel to become much more involved in the criminal justice system. Some of these are symbiotic, as players must determine their role in the system, establish the appropriate bonds, and establish procedures to ensure a smooth working relationship. Others are technical, as responders are taken from their comfort zone of rescue-related activities into roles requiring evidence documentation, preservation, and collection, and to the creation of detailed reports for use in the court process.

It is this void which *Interface: A Guide for Professionals Supporting the Criminal Justice System* looks to fill. For over 20 years the author has taught fire service and EMS responders about crime scene preservation, evidence handling, and introduced them to the court system. This book looks to expand that, to give the public safety responder a greater understanding of technical aspects of the system, documentation and reporting, and the court system. It will also strive to better pave relations between the different groups involved, many of whom, depending on locale, have had less than close associations in the past. As we have seen from the former less than cooperative connections among a variety of federal agencies, these fiefdom jealousies ultimately interfere with successfully pursuing the objectives and goals of the overall system, and result in potentially catastrophic failures.

Palm City, Florida

Paul R. Laska

Acknowledgments

Much of the creation of this work reflects my own evolution in the criminal justice system, from a poor college kid introduced to the field of identification/crime scene investigation in 1974, through my years of service, experiences, training, and the many acquaintances and friends along the way who molded me into a successful practitioner. They all deserve to be mentioned here, but the work would be far too long.

Great thanks to Harvey Kane, formerly the forensic representative for Springer, now retired. Harvey came to me to inquire about possibly producing a new crime scene book. His guidance led me to produce this work, and introduced me to the world of book publishing.

Dave Phoebus, the retired Chief Assistant State Attorney for the 19th Judicial Circuit of Florida, reviewed all sections dealing with the courts and testimony. Dave kept me focused and accurate in dealing with the oftentimes mysterious or convoluted field of American jurisprudence.

Larry Bedore, Director of Investigations, 8th Circuit Medical Examiner's Office in Florida, is the Commander and among the original working group members who established the Florida Emergency Mortuary Operations System (FEMORS). Larry's knowledge of the history as well as function of FEMORS was invaluable in detailing it as a multidisciplinary professional support group.

Two long time friends from the Indian River Regional Crime Laboratory in Ft. Pierce, FL, were, as always throughout my career, wonderful resources. Daniel Nippes, Crime Lab Director and Chief of Serology, gave me valuable direction on DNA and serology in the laboratory. Babu Thomas, Chief of Chemistry, guided me through the instrumentation used in the chemistry section.

Keith Holman, Emergency Manager for Martin County, FL, and Martha Beaudoin, Radiological Administrative Assistant for Martin County Emergency Management, for their review of materials dealing with ICS, EOCs, and related aspects of the cooperative efforts in disaster management.

Being a technical investigator rather than a true detective, my interview skills are not highly developed. I turned to a group of current and former investigators from my emeritus agency, the Martin County Sheriff's Office in Florida. These include Lt. John Cummings, Lt. Dennis Fritchie, Sgt. Brian Bergen, Sgt. Mike Dougherty, Det. Brian Broughton, Det. Jesse Carde-Perez, and Det. Pat Collusano.

Sgt. Marty Jacobson of the Stuart (FL) Police Department is a highly respected instructor, whose ability to make cultural diversity training for police interesting and not provocative has made his presentations well received, brought these principles back to me, especially as a tool for the interviewer.

Stevee Ashlock for kindly permitting the inclusion of her page "10 Image Tips for the Professional," a concise aid for any professional making presentations.

Richard Tanton, former Crime Lab Director and Chief Serologist for the Palm Beach County Sheriff's Office Crime Lab in Florida, guided me to a copy of his paper on expectations of the jury pool on the appearances of expert witnesses.

Mistakes, omissions, and other shortcomings fall on my shoulders; the quality of the book comes from these and the many unnamed people who guided me through my career.

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1.1 The System

The television series *Law and Order* opens with a voice over stating, “In the criminal justice system, the people are represented by two separate but equally important groups; the police who investigate crimes, and the district attorneys who prosecute crime.” Although simplistic, this accurately describes the system, and especially the fact that the components of the system have very different roles and goals.

First, it is important to understand where the American criminal justice system comes from. In response to the excesses suffered during the colonial period, the Constitution established a multilevel court system for the federal government, quite similar to the courts adopted by the states as well. In addition, before the legislatures of the various states would ratify the Constitution, a Bill of Rights consisting of the first ten amendments was created, stating specific rights recognized by the government of the citizens. Among these rights were several protecting the accused in a criminal investigation or prosecution. Thus, the American system requires due process to take an individual from “accused” to “convicted.” Citizens are protected against unreasonable searches and seizures; from being forced to incriminate themselves; are guaranteed trial by jury; and protected against being charged a second time if acquitted of charges. Further, it establishes the concept of a speedy trial, the right of the accused to be informed of the charges being brought, the right to mount a defense, and the right to be represented by an attorney.

The 200+ years since the establishment of the Constitution has seen the courts, especially the Supreme Court, examine, interpret, and clarify the meaning of its various components. Thus, the words of the Constitution and their interpretation have formed a framework that provides guidance for the criminal justice system to observe in its trek to establish the truth and bring the guilty to answer.

The American political system is also different from that of other nations. Under the concept of federalism, both the national, or federal, government and the governments of the

states, territories, commonwealths, and tribes (all of whom will be included in the term “state” hereafter) have lawmaking authority, and each has independent criminal justice authority. Further, municipalities and counties, as subdivisions of the state government, have lawmaking authority and may have judicial systems, as well as having their own police authority.

Confusing on its face, it becomes manageable in operation. Federal officers, and trial courts, only have jurisdiction over violations of federal law. The states only have authority in regards to state laws, while the local jurisdictions have authority to act on state and local violations. The notable exception to this is the tribal police, who generally have the option of charging an offender with tribal, state, or federal offenses. However, most local (municipal and county) laws, often referred to as ordinances, are misdemeanors, low-level offenses usually punishable by 1 year or less in jail. State and federal laws are comprised, in the criminal sphere, of misdemeanors and felonies, the latter punishable by terms of imprisonment greater than 1 year, up to the death penalty for certain crimes deemed especially heinous.

For most working in the criminal justice system, these points become blunted. A local agency may encounter a federal offense in which case they contact the appropriate federal agency and pass the investigation over to them. Conversely, federal law enforcement officers will call upon local or state police to take over criminal investigations that do not have a federal nexus.

There are more than 80 federal law enforcement agencies, and almost 20,000 total agencies within the USA. Along with the above-mentioned federal, state, and local agencies, there are also specialized agencies serving specific purposes, such as campus police, school police, airport police, port authority police, railroad police, and transit police. The railroad police are an important exception to the usual public nature of policing, as they are generally operated by private corporations through local and federal laws providing law enforcement function for the rail industry.

In total, there are about 700,000 law enforcement officers in the USA. Of the approximately 20,000 agencies, the largest, with about 40,000 officers, is the New York City Police Department. At the other end of the spectrum are many one-officer agencies. Indeed, the average agency size in the USA is about 15 officers. Thus, the capabilities of these agencies vary greatly.

State policing differs significantly among the many states. In some, a state police agency combines many functions within one agency. In others, a wide variety of agencies each police a certain facet of crime, e.g., highway patrol, fire investigations, fraud, executive investigations, fish and game enforcement, crime lab services, etc. Further, in some, a state police is the paramount police agency. This is especially common in the northeast quadrant of the nation where sheriff's offices may have limited power or jurisdiction. The state police conduct all policing of unincorporated areas, as well as providing statewide support services. In the south and west, especially, with the existence of strong sheriff's offices, state police agencies' authority is more limited. In addition, in the State of Hawaii, there is no state level law enforcement agency.

Note that at the federal level, the Congress has assigned each criminal law to a specific federal agency for investigative purposes. Thus, the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) is charged with the investigation of firearms, arson, and bombing offenses. The Federal Bureau of Investigation (FBI) has assigned to it a wide expanse of laws, including terrorism, weapons of mass destruction, bank robbery, espionage, and kidnapping. The Secret Service is primarily responsible for crimes such as counterfeiting, credit card crimes, and similar economic crimes, as well as being charged with executive protection. More specialized, the Criminal Investigative Division of the Environmental Protection Agency investigates violations of environmental laws, while the Criminal Investigation Division of the Internal Revenue Service investigates crimes relating to tax evasion.

As we move to the court function, the system narrows. At the federal level, all trial activity occurs at the Federal District Court. The states and territories have been broken into districts based upon geography and population. Heavily populated states will have multiple districts, such as Florida, which is divided into Northern, Middle, and Southern Districts. Small states, such as Delaware, and states with small populations, such as Wyoming, only have a single district.

At the state level, the makeup of courts varies by state. In most states trials are conducted at two or three levels of courts. These may be municipal courts with jurisdiction for violations of municipal law only, county courts with jurisdiction over all misdemeanors, and an upper level of trial court known by a variety of names (circuit court, district court,

supreme court, etc.) which has jurisdiction over all crimes, especially felonies.

Prosecution generally is organized along the same jurisdictional lines as the courts. Thus in the federal system, each federal district has a United States Attorney, an appointee of the President, under whose auspices a staff of Assistant United States Attorneys (AUSA) conduct the daily case review, preparation, and trials. Each state has its own system, being known generally as State's Attorneys, District Attorneys, County Attorney's, or Prosecutors, again staffed by a chief prosecutor, who may be elected or appointed, and who then is aided by a staff to handle the jurisdictional case-load. At the local level, the presence of a municipal court system may find a local City Attorney or City Prosecutor's Office, or may find prosecution conducted by the staff of the general jurisdiction prosecutor's office.

Within any one jurisdiction, investigators will work primarily within their specific court system. Thus, local and state law enforcement will work within the framework of state courts, and then within the specific geographic jurisdiction in which they are located. The same is true for federal law enforcement. Occasionally, cases cross jurisdictional lines. If the case remains within the same state system, it is not that complicated, but if it crosses state lines it becomes more complex as the attorneys must deal with the concept of extradition. However, this has little effect on the police function itself. While the federal and state systems are very different, state and local investigators who deal with federal crimes, such as auto theft, bank robbery, and bombs, quickly become familiar with the requirements of the federal system, and generally work closely with appropriate federal agents. Conversely, it is rare that a federal officer needs to file a case in the state system. When it is necessary, liaison with a local officer provides the guidance and assistance to file the case.

Jurisdiction will usually affect a police agency taking police actions outside of their legal jurisdiction. In some states an officer has statewide jurisdiction. Several states have established regional compacts permitting their law enforcement officers full authority in the other signatory states. In many states jurisdiction is limited to the officer's home jurisdiction. In some areas, a Sheriff may deputize all officers within the county, thus giving municipal police the ability to travel countywide to conduct investigations and make arrests. Often task forces are established to investigate specific problems, such as auto theft, narcotics, or terrorism, under the auspices of either a state level agency or even a federal agency. The members of the task force are then sworn in as members of the umbrella agency, giving them the necessary jurisdiction to undertake their operations.

The best advice one can give personnel who are not regular travelers through the halls of justice is to ally themselves with counterparts in the criminal justice system; officers or investigators who are familiar with the system, and who will

guide another through the many aspects of filing a case, submitting documentation, and handling the various testimonial needs of the system. The combination of experience, knowledge, and making acquaintance with the various players along the way will all make the experience easier as one becomes a veteran within the system.

1.2 The Policing Function

Policing entails a variety of functions which will be performed in different manners by the variety of agencies. The larger the agency, the more specialization it will have, and various functions will fall to members trained in a particular expertise. Some specialized agencies only perform certain functions. At the other extreme are the small agencies in which every officer must perform all functions, or request assistance from larger agencies with in-house abilities to perform special functions.

The acclaimed author Joseph Wambaugh wrote “Police work is long hours of boredom punctuated by moments of sheer terror.” True words. Most law enforcement is routine; whether patrol, investigations, or management. For every high-risk arrest, pursuit, rescue, or other adrenalin pumping action, there are hours or days of varied, but unexciting, work.

Patrol is the backbone of law enforcement. It is a multifaceted function, one which may stand alone, or may form the basis for advanced aspects of law enforcement. Patrol is first and foremost a deterrent effect, designed to intimidate the wrongdoer and prevent crime. This is an important aspect and applies particularly to traffic offenses, property crimes such as burglary, violent crimes such as robberies, and to offenses that occur on the street such as drug sales and prostitution.

Maintaining public order is a crucial aspect of the patrol function. Whether a foot beat or motorized patrol, the mobility of an officer means rapid response to unfolding events in or near his assigned patrol area. This is especially true concerning unfolding violent, or potentially violent events: fights, disturbances, domestics, and other events that could conceivably cause injury or death.

Documenting events is also an important aspect of the patrol officer’s job. The majority of dispatches are for the purpose of taking a report, whether for administrative purposes – most traffic collision reports, reports of routine fires, deaths – or as the initiation of the investigative process in criminal or potentially criminal incidents.

While the evolving nature of the fire-rescue system is taking primary responsibility for emergency response and management of rescue-related matters, nonetheless, the patrol officer will most often be the first to arrive on a scene. Wrecks, fires, medical emergencies, and similar situations

will most often see the officer assigned to a neighborhood arrive first, assess rescue needs, conduct rescue, begin emergency first aid and secure the scene until the arrival of specifically trained responders.

Larger or specialized agencies may provide advanced patrol abilities. The most common is the traffic enforcement officer whose responsibilities may include traffic law enforcement, wreck investigation, traffic control at major incidents, and similar responsibilities. In larger agencies, these personnel may be more specialized; officers whose primary assignment may be impaired driving enforcement or the investigation of traffic fatalities.

Some agencies may employ specialized forms of transportation for the patrol function. Personnel mounted on horseback are common in many urban areas. The horse provides the officer visibility, quick and highly maneuverable transport, and a mount which is both friendly to the common public yet highly intimidating when used to contain and corral unruly individuals or groups. In rural law enforcement the horse is also a valuable tool. The horse’s ability to traverse otherwise forbidding areas provides the officer energy-saving transport when conducting manhunts, searches, or similar backcountry operations. The mobility of all-terrain vehicles (ATVs), boats, Segway Personal Transporters, snowmobiles, and other specialized transport gives the law enforcement agency greater reach and capability than ever before. Waterborne patrol, ranging from personal water craft to small pond boats to ocean racing type boats and up to sport fishermen and specialized harbor patrol craft provide a wide variety of patrol services from small communities to the largest cities.

Aviation has become another important tool in law enforcement’s arsenal. Initially, fixed wing aircraft were used to provide agencies a fast, yet stable patrol, and observation platform. The helicopter is now the major air tool of the police agency, providing relatively fast travel and the ability to either orbit a scene tightly or even hover. The addition of powerful spotlights, forward looking infrared (FLIR), thermal imaging, and night vision equipment has increased the value of rotorcraft to law enforcement. For routine patrol, oversight of pursuits, tactical support of dynamic or violent encounters, surveillance, photo platforms, and even administrative support, helicopters have proven their utility in the law enforcement fleet.

Investigations encompass a wide variety of law enforcement operations. Detectives follow up on citizen complaints and attempt to resolve them. In small departments, the detective may conduct crime scene investigations, follow up on cases, do surveillances and stakeouts, and perform other tasks. As the size of the agency increases or the nature of the agency becomes more specialized, a detective becomes a true specialist, working only certain crimes, be they homicide, sex crimes, burglary, white collar, narcotics, etc.

The epitome of a detective is the ability to communicate, to interview a witness or victim, to interrogate a suspect, to obtain information that either has been repressed or is being knowingly withheld. Top-notch detectives combine the compassion of a priest, the patience of a saint, a deep understanding of their community and their streets, and the verbal skills of the con artist with the psychological expertise of a veteran counselor.

The detective takes a case and reviews what has transpired. Follow-up will consist of interviews – talking to people, learning what they know, putting it together. A detective may encounter either witnesses with gaps in their memories or suspects that deny involvement or attempt to paint a different picture than what the detective knows to be factual. The ability to use words, to understand the individual and work with their personality becomes the tools that enable the detective to glean the truth from cover-ups and falsehoods.

The detective is then responsible for taking all of the aspects of the case; the interviews and interrogations, the results of forensic investigations, and other relevant developments, putting them together, developing a conclusion, and presenting it to the appropriate entity. That entity may be a prosecutor or in some jurisdictions if death is involved, a coroner. If it is an internal investigation it will be presented to administrators who will then determine the next steps to be taken.

The caseload of detectives in smaller agencies will include all crimes from burglaries and auto thefts to sexual assaults, robberies, and homicides. As agencies grow these crimes are often separated among detectives who specialize. A burglary detective becomes very familiar with the method of operation of various offenders; a sex crimes investigator comes to understand the different thought processes of rapists, child molesters, etc. Homicide detectives are generally able to devote significant time to the case, especially that first 48 hours when information gathering is most crucial.

There are some highly specialized detective functions. Foremost are narcotics, vice, and organized crime investigators. These detectives must not only have detective skills but also develop large networks of informants. They also need the skills of an actor as much of their work is conducted in undercover operations. Intelligence detectives need to develop wide and varied networks of informants and the analytical skills necessary to analyze incoming information to make it useful for crime prevention.

The success of shows such as *C.S.I.*, *Crossing Jordan*, and even *Law and Order S.V.U.* has brought the role of forensic science firmly into public view. However, unlike the fictional depictions, it is more mundane and less magical than television would have you believe.

Forensic science, or the application of science to debate (the legal system), is a generic term which includes many different disciplines. These include such areas as forensic

medicine, forensic psychology, forensic engineering, and forensic accounting, each of which brings its unique areas of expertise to court. Another subset of forensic science is criminalistics. Within this are identification services, crime scene investigations, and crime laboratories.

In the late 1800, researchers began to take notice of the uniqueness of the ridge detail that is found on feet, hands, and fingers. As a result, law enforcement began to use this for two separate, but equally important purposes; cataloging individuals who came into the system, and as a manner of identifying persons who had touched items and thus transferred images of the ridge details to that item. These activities came to be known as identification science.

Despite some efforts to discredit it, fingerprint identification remains the most individualistic form of personal identification. It is based upon the ridge details contained in the friction ridges, the corrugated skin surface of the hands and feet that provides a nonslip surface for walking and handling items. These details are formed during fetal development and remain until postmortem decomposition unless damaged or scarred. They are unique to each individual person.

The impression of these ridges may be transferred to other surfaces by impressing them into a soft material, such as putty, wet paint, or cheese. It may also be the result of the transfer of an intermediate medium, such as blood, oil, or dust. Most commonly, it is by the deposition of an imprint of the ridge detail in sweat, which exudes from the pores located on these ridges. Fingerprint impressions may be visible, such as transferred blood or wet paint. Most often they are invisible. They are made visible by a variety of techniques, including powders, chemicals, and lighting. Initially, invisible prints were referred to as latent fingerprints. Over time, this term has been generally applied to all transferred fingerprints.

In very small agencies, an interested member may just conduct latent fingerprint examinations. As the agency size increases, this often grows to an identification bureau, which may include cataloged fingerprints of persons, latent fingerprint examination and identification, and often crime scene investigations. As the size continues to grow, this may become more specialized with a unit handling personal identification, another identifying latent fingerprints, and yet other specialists who either as part of a crime scene unit or as a laboratory component, search for and develop latent fingerprints.

Crime scene investigations are becoming a pivotal component of the forensic science community. Without properly documented and collected evidence, the crime laboratory has nothing to analyze; the behavioral profiler is without the clues that permit identification of the perpetrator; the detective is without much of the glue needed to cement the case; and the prosecutor is without key materials necessary to prosecute the case.

Crime scene investigations consist of the documentation of the scene, the collection of physical evidence, the preservation of that evidence, and its submission either to safe keeping or to analysts for further examinations. Much as with the identification arena, crime scene services vary from an interested officer in a small agency, to a single investigator or a small unit, to large units in major agencies.

Crime scene investigation is based upon the work of Dr. Edmond Locard, the founder of the first true crime laboratory, in Lyon, France. In about 1910, he postulated Locard's Principle of Exchange, which basically states that, for any crime, something will be brought to the scene, and something will be taken away. This may be gross evidence, such as a firearm brought to the scene and discarded, or microscopic, such as the DNA left by a perpetrator touching a door knob.

Documentation of the scene comprises several aspects. Written notes form the basis of all later reports. Sketches help put the scene into two dimensions, often simplified by the omission of extraneous details. Photography provides a visual representation of the scene as encountered, of evidence located before recovery, and permits "revisiting" the scene long after the on-scene investigation is complete. While still photography is the primary tool of documentation, video is often used to provide a different view of the scene as well as to document motion, activity, or even reenactments.

Collection of evidence occurs on several planes. Gross evidence, whether motor vehicles, firearms, knives, tools, or other larger items, is collected intact, although further processing and collection may be conducted on it. Relatively invisible evidences, such as latent fingerprints, DNA, body fluids, hairs, or fibers are searched for by the use of chemical aids, powders, or specialized lighting referred to as forensic light sources, which include lasers and lights projecting only specific wavelengths of color. Powerful white lights, electronic tools such as electrostatic dust print lifters, or dust are used to visualize and collect shoe impressions on floors, carpeting, etc. Shoe and tire impressions in soft soil are photographed and cast with dental stone. Tool impressions in wood or metal may be cast using silicone rubber lifting medium and collected. Other material such as soil, plant residue, paint transfers, or any of a wide variety of potential evidence may be located by appropriate search techniques.

Preservation of evidence has taken on greater importance as technology has brought us greater meaning from the evidence. It must be handled in such a manner that it is not contaminated. Thus, physical care must be taken not to damage, destroy, or lose evidence on collected items, as well as while working the scene. Gloves are often worn to protect against depositing one's own DNA; indeed, the investigator must take care to avoid sneezing, coughing, or other actions which may expose evidence to extraneous DNA.

Because some actions require activity at the scene while unprotected, or without regard for the evidence, standards are taken from those on the scene without protection. First responding officers whose function is to safely secure the scene and begin rescue of victims, and fire and EMS personnel whose role to preserve life takes precedence over evidence, may often be required to submit fingerprints, hair standards, DNA standards, shoe standards, and possibly other standards that may eliminate material transferred by them as they conducted their emergency operations. Similarly, tire imprints may be needed of patrol car and rescue trucks to eliminate these impressions from those of suspect origin.

Evidence is packaged in an appropriate manner for the material involved. Items of evidence wet with blood or other body fluids are packaged in paper or cardboard, allowing the fluids to naturally dry rather than putrefy in an airtight package. Many items can be packaged in plastic bags, which will provide an appropriate level of protection. Volatile materials, such as liquid fuels, explosives, or other chemical materials may be packaged in new, clean paint cans, glass vials or jars with appropriate tops, or laminated nylon bags to protect against evaporation of the material, with the selection of the container often dictated by the specific evidence.

Another aspect of preservation is the sealing and custody trail of the evidence. Whenever possible, items are sealed in a container, the container marked for identification, and then the closure of the container sealed and the seal marked to show that it has not been disturbed. When not possible to place the item in a container, the evidence will itself be marked in an indelible manner with the marking system that is locally used, usually a combination of case number, date, item number, and personal identification of the collecting officer.

The custody trail is referred to as a "chain of evidence." It is most often maintained by a receipt form, which describes evidence and provides for date and identification of individuals transferring evidence. Many agencies also use a bar code system to track these changes in possession. Thus, at some much later date a record may be referred to showing who possessed the evidence at any specific time from the crime scene until presented in court or disposed of.

Most evidence will be placed in an evidence room where it will be maintained in a secure atmosphere until it is needed for court or disposed of. Some evidence may be sent to the crime laboratory for further analysis, or to other analysts for specific examinations.

Many agencies refer to their crime scene or identification functions as their "crime laboratory." However, actual crime laboratories are dedicated facilities that conduct a variety of examinations under scientific procedures to identify evidence. Crime laboratories vary in size, with smaller laboratories providing only a limited number of services, while larger laboratories provide a much wider variety. Most commonly,

laboratories provide analytical chemistry to identify drug compounds and volatile fuels, toxicology services to identify drugs, poisons, or other adulterants, microscopic services that examine hairs, fibers, paint chips, and other minute items to determine physical relationships or to identify the nature of the material. They also commonly include fingerprint sections conducting lab processing for latents and identification. Most labs also include pattern examinations, these including firearm, toolmark, footwear, and tire impression analysis. Larger laboratories, or some specialized laboratories, will conduct advanced chemical analyses, where otherwise unknown materials are tested to determine their identity. Some of these laboratories specialize in arson and explosives analysis, with a few major laboratories performing other chemical analyses. Document examinations where handwriting, typewriting, and similar marks are examined and, when possible, identified to a source are found in some laboratories.

An important aspect to understand concerning the entire forensic science field is that it has a long standing ethic that places its loyalty to the evidence, not to a police agency, prosecutor, or other entity of the criminal justice system. The criminalist is dedicated to the evidence, letting that evidence speak for itself, no matter what the outcome of its statement may be. While there have been some notable violations of this ethic, as in any human endeavor, most forensic scientists consider this a sacred responsibility.

There are certain members of the investigative community who combine both the detective's role and that of the forensic specialist. These include investigators such as fire investigators, traffic homicide investigators, and bomb technicians. Each of these is intimately involved with physical evidence, often being responsible for documenting, collecting, preserving, and even interpreting evidence, in addition to conducting the follow-up investigation of their cases.

The public safety practitioner is routinely thrust into interaction with the law enforcement officer. These relationships vary, depending on agencies, individuals, and even situations. There are long standing petty jealousies between the fire service and the police service. Some are labor oriented; who is paid how much, who gets what kind of work schedule, whose work is more dangerous or more difficult, etc. Others are work oriented, as law enforcement chafes at traffic flow disrupted by fire trucks blocking the streets, or investigators finding their crime scenes disturbed or destroyed by firefighters or rescue personnel conducting their operations prior to the beginning of police investigation. Similarly, EMS personnel find their operations being hurried or their work areas squeezed tightly by law enforcement activity, and fire personnel find police standing about a scene, watching them work, while expensive fire equipment is left standing unsecured.

Other members of the public safety community have better relations with law enforcement. Nurses, especially those in emergency departments, routinely interact with officers, especially investigators, and find themselves working closely with the police community. This relationship does fade the further one ventures from the emergency room, often due to the simple fact that interaction is so much rarer in areas such as intensive care. Generally, EMS personnel, when not assigned to fire-rescue organizations, have closer working relationships with the police service. Others, such as emergency management and health department personnel, rarely have interaction with law enforcement.

The entire public safety community, including the law enforcement field, must form closer relationships as the roles and challenges of public safety evolve. To achieve better relations, better communication must be established. For police, this is often easy, as patrol officers will use fire and EMS stations as quick stops, where they can borrow a phone or a desk, safely eat a meal, and as communications develop between personnel take quick breaks to talk to friends and relax, away from the streets and the demands of the public. Emergency rooms also provide safe havens for officers, where they can scratch out a report, take a break enjoying a cup and conversation, and improve relations among professionals.

The situation is a bit more complex for health department and emergency management personnel. Often located in office settings they rarely interact with law enforcement personnel. As the field of environmental investigation grows, police have greater interaction with environmental health personnel at health departments, as many of the situations regulated by these professionals may become criminalized, and thus law enforcement officers will be needed to provide an investigative aspect for them.

Communications are also improved by greater participation of all groups in various forums; Local Emergency Planning Committees for Hazardous Materials, mandated nationally, require participation by specific groups such as health, environmental, emergency management, fire, EMS, and law enforcement. Training also provides the opportunity for all involved to "meet and greet," establishing those relations that they may need in the future. Thus, training sponsored by any group should be opened to others if there is a benefit to be derived by them. Opening training such as incident command, weapons of mass destruction, hazardous materials response, bomb response, and evidence recovery and handling to the entire emergency response community permits the various players to obtain expertise and establish new relationships.

Another way to establish better relations is through active participation in various exercises. Whether a tabletop or a full drill, these exercises bring the players together, allowing them to meet and establish relationships. They also provide

valuable feedback on how well plans, training, and equipment work under actual conditions as well as providing an opportunity for interpersonal and interagency problems to be worked out safely and not negatively affecting an operation.

1.3 The Court Function

Most commonly, when one thinks of the courts and the criminal justice system, a picture forms of due process as an accused moves through the system, from issuance of an arrest warrant to early postarrest hearings, and finally to trial where a jury determines guilt or innocence. However, as will be seen, criminal justice has many other interactions with the court system.

The term “court system” refers to three separate components, each of which fulfills its own role in the overall system. The prosecutor, often called a State’s Attorney, District Attorney, or another term as set by local laws, is the first entity of the court system. The defense counsel, whether a private attorney or a public defender, provides legal representation to the accused, ensuring that the state meets its burden of proving guilt beyond a reasonable doubt using legally obtained evidence. Finally, there are the judges who act as arbitrator of the law, overseer of the jury, and at times, at the request of the accused, act as the trier of fact as well.

1.3.1 The Prosecutor

The prosecutor is generally the first person in the court system to become involved with a case. The prosecutor may become involved in a variety of ways.

Even before an arrest, the prosecutor may be involved in a case. Investigators will consult the prosecutor for advice regarding aspects of a case, especially aspects of legal significance. Does a statute apply to the facts in the case? To what extent may a search or interrogation proceed before crossing into constitutionally protected areas? May a strategy for interrogation be used without infringing the suspect’s rights? These and a variety of other questions may be brought to the prosecutor for clarification and guidance.

Usually a search warrant will be prepared by investigators with review and input from the prosecutor. Often, the most qualified person to write the warrant will be a secretary, especially one in a narcotics unit, where search warrants are routinely used. A secretary who routinely prepares search warrants knows the necessary components of a warrant, as well as understanding key legal phrases preferred in the jurisdiction. The prosecutor will review the completed document, looking at it with both the eye of an impartial third party and the eye of a legal professional, ensuring that the wording meets the requirements of the local court system.

Once the warrant has passed this inspection it is presented to a judge who will review it and either approve or deny it.

Arrest warrants are one of the two primary methods to arrest an individual. An investigator will appear before the prosecutor and lay out the case. The prosecutor will review the facts, determine if there is “probable cause” to support an arrest, and if satisfied, will approve the warrant for submission to a judge who will then have the final say as to its issuance or denial.

A variation of this method is to present the case to a Grand Jury. Most jurisdictions have grand juries who meet on a routine basis. The grand jury is a panel of citizens who hear cases presented to it. The presentation is made by the prosecutor who may or may not present witness testimony as he deems appropriate. Again, this is an area where the prosecutor is intimately involved in the case, as the grand jury will function under the supervision and guidance of the prosecutor. If the suspect is indicted by the grand jury the a *capias* (arrest warrant) to be issued.

The second common method of arrest is by “probable cause.” This is the most common form of arrest, where an officer makes an arrest either upon witnessing a violation, or upon having developed probable cause that a suspect has committed a crime. Probable cause arrests vary by states, as the laws will vary among these jurisdictions as to what offenses may be arrested upon probable cause. The prosecutor will then become involved in the case, reviewing it before the first court action, which generally occurs within 24–72 hours of the arrest. This first court action will generally concern itself with three aspects – is there probable cause to support the arrest, advising the suspect of rights, and setting reasonable bail.

In many jurisdictions, the prosecutor will conduct an intake hearing, where the prosecutor meets with the primary investigator and significant witnesses. From this hearing, the prosecutor is better able to make decisions regarding final charges, nature of plea bargains, and ultimately whether there is sufficient evidence to convince a jury beyond a reasonable doubt that the defendant committed the crime.

The prosecutor is involved in every step of the case from that point on. There are numerous pretrial motions that can be filed by both the prosecution and the defense. Unless stipulated to by the parties, these motions require formal court hearings. Many jurisdictions also allow depositions, a form of noncourt hearing where witnesses appear one at a time before the prosecutor and defense counsel.

The prosecutor may also be involved in informal meetings during the pretrial period. These may be with witnesses to discuss their knowledge of facts and prepare them for trial. Meetings may also be conducted with defense counsel, where discussions may take place about entering into a plea bargain. Often, a plea bargain becomes an important instrument for the system, saving valuable court time while often

allowing the prosecutor to ensure a conviction despite weaknesses in the case. It also provides the defendant the opportunity to avoid a maximum sentence.

Trial is the most stressful aspect of the case for the prosecutor. Now the talents of the lawyers come into play; their abilities to present the information, their abilities to question witnesses, to bring out facts or denounce statements. A major trial, such as a homicide, may see the attorney in court for an eight hour day, a working lunch, and in the office until late hours reviewing reports, statements, and evidence to prepare for the next day's court.

Most prosecutors' offices maintain an investigative staff. This staff, usually composed of former law enforcement investigators, perform several functions. As the case progresses, issues may arise for the prosecutor. Witnesses need to be re-interviewed for details that may not have been pertinent earlier in the case. Other shortcomings in a case may need follow-up, a task that usually falls to the prosecutor, as the police have moved on to new investigations which occupy their time. As important hearings or trial approaches, it is mandatory that all witnesses be located and served subpoenas for trial. While most will be easily located, others will require an investigator to expend shoe leather finding them. Finally, the prosecutor will find their office conducting investigations, cases involving the police as potential suspects, cases involving political corruption, or cases assigned to them by a state level authority (an Attorney General or Governor). In any of these instances, it will be the investigative staff of the prosecutor's office that will do the actual detective work and presentation of findings.

Government attorneys' such as prosecutors and public defenders are paid much less than their private counterparts, and thus the system often becomes a training ground for private practice. The prosecutors' offices often have a higher retention rate than public defender offices, as many prosecutors find they don't care to do defense work, and prefer to serve the state. Thus, many prosecution teams will be staffed with a variety of career prosecutors who have built up a strong background of knowledge and ability.

1.3.2 The Defense Counsel

The defense attorney's interest is to review the quality of the state's investigation, its adherence to legal constraints on the investigative process, and to ensure that the state is able to prove the case as charged. The defense attorney will also examine the case to attempt to mitigate the defendant's liability, whether by an acquittal, a lessening or dismissing of charges, or through plea bargaining.

It is important to remember, as a witness, that there is no such thing as "off the record." Defense counsel has an absolute responsibility to the defendant. This never means one

covers-up or otherwise fails to disclose details of a case; rather, one must recognize that offhand remarks may be seen by counsel as of value, and come back later to haunt the unwary.

Much of the defense attorney's research is conducted through the discovery system. This usually comprises two aspects, which will vary based upon the legal rules applying to discovery in various jurisdictions. First is physical discovery. This entails the attorney requesting copies of all written and other documentative evidence from the prosecutor. Delivery may vary, based upon local rules and customs. The prosecutor may be point of contact in some jurisdictions; the local agencies may be responsible in others. It is important for agencies to understand their role in discovery, and to maintain procedures to ensure discovery is provided within the applicable rules of procedure and laws. It is best that an agency consult with the local prosecutor to ensure that appropriate procedures are established and followed.

The second form of discovery is through the deposition. This is a formal hearing, attended by prosecutor, defense counsel, the defendant if he so wishes, and the witness, and recorded by either a legal stenographer or electronically. It provides counsel the opportunity to learn what the witness knows, what the witness will testify to, and gives the attorneys an understanding of the witness, his abilities to communicate, etc. Often a deposition will be more in-depth and take considerably longer than a witness's actual court testimony; it may include hearsay, opinions, and other testimony that may not be permitted in court but, as part of discovery, is permitted.

The defense counsel also needs access to investigative staff. Public defenders may have staff investigators, often former law enforcement officers; private attorneys will contract private investigators (PIs). PIs vary, both in ability and in specialty. Some will be experienced, highly capable investigators, perhaps retired from law enforcement, or with a background in another field such as news reporting. Others may not be highly regarded, either due to their abilities or personality. Many PIs are specialized; fire, fraud, insurance, divorce, and surveillance are some of these specialties. Indeed, many specialize in homicide, providing services to defense counsel in homicide and other major criminal cases. The role of the defense investigator will be quite similar to that of the prosecutor's investigator, locating witnesses, taking statements, reviewing case facts, and unearthing new evidence. Often, they will also be used as point of contact between the attorney and private forensic witnesses.

Attorneys themselves will vary in capabilities. Many attorneys are general practitioners, including criminal, civil, divorce, and similar law. However, especially in larger population areas, there will be a number of attorneys who specialize. Many who specialize in criminal law began in either a prosecutor's or public defender's office. Others

specialize in civil law, domestic relations, elderly law, corporate law, patents, or any of a wide variety of specialties. Most specialists will not handle cases outside their area of expertise; however, the needs of a firm may dictate that they undertake a case outside their field, or a jurisdiction may use a pick system for providing public defense, appointing an attorney to a case off the local bar association list. In these cases, the attorney may be somewhat lost wandering the criminal court system; this should not be mistaken for incompetence, but only for lack of knowledge of the system.

The American criminal justice system is considered an adversarial system, as are many others. In it the prosecution brings charges, the defense protects the rights of the defendant, and the court sits as an impartial arbiter. At times, personalities enter into the system, and a case becomes truly adversarial – a courtroom may sound like a battle as two attorneys who do not like each other argue a case. However, most cases are handled in a much more professional manner.

This is not to suggest, regardless of their like or dislike of each other, that in hearings or the courtroom, opposing counsel will be less than aggressive. It is their job to locate information, reveal it to the trier of fact, and provide their client (the state or the defendant) the highest possible quality in skills. However, professional and aggressive does not mean acrimonious, especially outside the formal setting. Thus, it is not a surprise to see attorneys, law enforcement officers, and members of the courts socializing when off the job.

1.3.3 The Courts

The courts consist of the judges, the juries, and the support staff, generally court clerks. Without diminishing their importance, suffice to say that court clerks maintain the records for the court system, publish the schedules for the courts, and oversee the general operations of a court system.

The judges are the central figures in the court system. The title for a judge will vary, depending on the type and level of court; justice of the peace, magistrate, judge, or justice may apply. All are judges, varying only in jurisdictional authority.

As a general rule, the role of the judge is varied. Pretrial, the judge will see defendants for hearings to determine if there is probable cause to proceed with a case and to ensure they are aware of their rights. They will also review the case and set or deny bail. They will oversee hearings to determine the admissibility of evidence in a case.

An important role of the judge is the issuance of warrants and orders. Except as permitted by Constitutional law, searches require a warrant before they can be made. This warrant must be issued by a judge with jurisdiction over the case. Once a case has been filed, requests to compel a defendant to provide evidence against his interest must be heard by the court, and if the judge agrees, an order issued to

compel the appropriate collection of evidence. This may be handwriting exemplars, blood samples, or other evidence that must be obtained from the defendant or through the defendant's cooperation. Finally, a warrant for arrest must be presented to a judge for his review of probable cause, and which the judge only issues after this review.

The grand jury, mentioned under the role of the prosecutor, is convened under the authority of a judge. Although the judge does not participate in presentations to the grand jury, the judge is responsible for the selection and empanelment of a grand jury, and upon the conclusion of their deliberations, they return their conclusions, called indictments, if charges are found, or a No True Bill if no charges are found, to the judge.

In trial, the role of the judge may vary. At all times the judge is the arbiter of law; that is, the judge is the authority in that courtroom on what the law means, or the procedural law by which evidence is admitted or testimony is given. The judge is also the maintainer of order in the court; usually this is through the presence and demeanor of the judge. At other times, it may require the voice of the judge, admonishing a witness or attorney. On rare occasions it is through physical force, which is extended by the judge through the bailiff, a law enforcement officer assigned to a courtroom to provide support to the judge in his role as keeper of the peace in the courtroom.

In many lower court actions, such as traffic court, if the defendant requests, the judge is also the trier of fact. This means that the judge sits, not only to determine legal questions, but also to determine the guilt or innocence of the accused. Indeed, although rare, defendants may opt for a felony to be tried by judge rather than jury, when, at the discretion of the defense, it is felt that a judge may have a better understanding of the evidence.

In most cases the trier of fact will be a jury. The jury will vary in number, from 6 to 12, plus in major or lengthy trials alternate jurors will be selected, to sit through the trial until the case goes to deliberation. The jury's role is to listen and watch the presentation of evidence attentively, upon completion of the presentation of evidence and summation by counsel, retire to a secluded room where they will deliberate. Deliberations may be quickly conducted, usually a showing that either the state had a very poorly presented case or a strong, unassailable case, or they may be very time consuming, going on for days or, occasionally, weeks. If the jury is unable to reach a conclusive decision, the judge may declare a mistrial due to a hung jury, at which point the state decides whether to retry the case. Otherwise, the jury will reach a conclusion of guilt, or of acquittal. In American jurisprudence an acquittal by the trier of fact, whether jury or judge, provides a Constitutional guarantee against double jeopardy; that is, the defendant may never be tried for that specific crime again in any court.

In the American system, the jury is considered especially inviolate. Thus, steps are taken to ensure a jury is both qualified for the role, and protected against outside influences. The selection process, referred to as *voir dire*, permits the opposing counsel and the judge to examine the candidates, determine if they harbor any prejudices that may influence their consideration of the facts, and establish that they have no outside pressures that may prevent them from giving the case their full attention. During trial, jurors are admonished by the judge to avoid news accounts of the case, conversations among themselves or with others regarding the case, and to report any violations of this, especially any attempts to influence them, to the judge. In some cases, the jury may be sequestered, that is kept at government expense locked in secure quarters, usually a hotel guarded by law enforcement officers. More often, the jury may be sequestered only for the deliberation stage, and in other cases the jurors may remain nonsequestered but under the judge's orders.

Two oft repeated comments must be considered. First, that the American trial system is flawed, in that jurors are not as knowledgeable as professionals, as are used in some systems. The other is that, despite flaws in the American criminal justice system, it is the best in the world. The second probably comes closer to the truth. Many nations use judges only in their courts; some use juries composed strictly of professionals who are considered more technically capable of understanding the evidence; in some, the prosecutor and judge are one in the same. While the comprehension of highly technical matters may be beyond the grasp of some jurors, that may be true as well of judges. While a jury composed of professionals may be better able to understand the technical concepts, is it a jury of peers able to examine the evidence as a cumulative "common man?" The inability of a juror to understand the technical aspects of a case may well be laid at the feet of the attorneys, who may fail to ensure testimony is understood by laypersons.

In law enforcement, documentation is the prime directive, to borrow television sci-fi terminology. While cyber scientists and neuro-specialists may disagree, the mind has a finite capacity, in practical terms, for information storage. The criminal justice system often is a sluggish machine, with cases dragging on for many years, whether criminal cases going through the appellate process, or civil cases which may take years to reach any conclusion. With the intricate details of the case that must be remembered over this period, good documentation is crucial to the function of the system.

2.1 Notes and Basic Documentation

The first step in documentation is the collection of field data. This may be accomplished in various manners. Written notes are the most basic, and most common. In note taking, several points must be considered. First, they must remain legible. For many of us, as we delve deeper into a project, our writing quality deteriorates. Soon, we have a mass of notes that not even the author can decipher. It sometimes takes a conscious effort to collect notes that remain legible and readable into the distant future.

A second consideration is detail. Describe in detail. It is not a cut; it is a 5-cm laceration. It is not just a shirt, but a red and blue check western style snap front shirt. This detail may not have great value in the future or it may become crucial at some future time.

Third, we need to maintain consistency in use of symbols and abbreviations. If you use the symbol “~” to indicate “about,” do not suddenly change to a new symbol. This may be confusing to you later, and may give an attorney a wedge to question the accuracy of all of your notes.

The material format of note taking should also be considered. Many police basic training programs tell the officer to keep notes in a bound book, which prevents pages from being removed and questions being made as to the missing pages. However, the converse applies as well, for example, the

investigator who manages many cases may well find it more efficient to remove the pages from the notebook and insert them into the case file where they will remain associated with that specific case, rather than having to maintain separate filing systems, one for case files, and another for filled notebooks. Whichever style you select, again maintain consistency.

Personal journals or diaries are often used by personnel whose systems do not promote the maintenance of in-depth narrative reports. The courts have permitted the use of journals; however, it is on a case-by-case basis, as the judge will review the manner of one’s documentation and determine if it meets the legal requirements to be accepted as a record keeping system. It is imperative for the professional who maintains a professional diary to ensure that it is used as a routine method of information gathering; accurate, devoid of noncase related information (phone numbers of interesting third parties should go somewhere else, not into this book).

For the fire-rescue and medical professional, maintaining personal notebooks may be the choice method. Agency or hospital record keeping is not designed to maintain loose sheets of personal notes, and indeed may become a vast “black hole” into which such notes could disappear and never emerge from. Using pocket notebooks permits the individual to take notes, fill the book, and chronologically file the notebook for later reference. Others, such as health department officials or environmental regulators, may find it easy to maintain their notes in their individual case files; indeed many probably already do this for their own casework. The important aspect is to study what will best suit your situation and then maintain uniformity in working with it.

A sometimes used tool is the tape recorder. Some individuals use it as a note taking device. The constraint to be considered in its use in this manner is convenience; once the notes are recorded, one must play the record back to find a specific reference, and the recording must usually be transcribed to be of later value in report preparation, for referral, or to allow sharing of its details.

The recorder is also used to record conversations, such as interviews. It is important to recognize that most states require all parties to a recording to be knowledgeable of its being conducted (with exceptions for law enforcement officers in certain circumstances); otherwise one is guilty of eavesdropping, a crime. It may be a valuable tool for persons who expect to be involved in conversations that may be evidential, such as forensic nurses or trauma physicians who routinely interview victims of violent crimes and whose statements may later have evidential value. However, it is also important to ensure that the victim be cognizant of the recording before beginning the process to protect oneself from criminal consequence.

When recording statements, one should be aware of the concept of the dying declaration. This is an exception to the generally accepted hearsay rule, which states that a third party may not testify to the words of another. As defined by Wikipedia, “Under the Federal Rules of Evidence, a dying declaration is admissible if

1. It constituted the last words of a person who was dying or thought he was dying, and
2. That person was *aware* or believed that he or she was dying, and
3. That person made a statement, based on his actual knowledge, that relates in some way to the cause or circumstances of his or her death” [1].

Thus, it becomes crucial that the witness to such a dying declaration meticulously document the statement and the circumstances leading up to it, to ensure that the appropriate questions are answered and that the words exchanged are fully recorded.

Perhaps the hardest aspect of accurately recording exact words used is when the speaker uses obscene or similarly distasteful language. This is a time when one must put aside personal feelings, and remember that one’s role is that of a recorder. At a later time the specific wording may become a significant value. Perhaps it is because those words convey the nature of the speaker’s emotions; possibly it helps to identify the speaker, showing a word pattern that is peculiar to that individual. Thus, conventions such as those used in the comics (Beetle, you *%\$* simpleton) or news magazines (The speaker said “Mayor you are a m-----r”) become less than accurate when used to illustrate a report.

2.2 The Report

Before examining the report, first consider why we prepare reports. Obviously, the report acts as a medium by which we can preserve our memories of events for later reference. These reports then have a considerable number of uses:

- Passage of information to oncoming professionals
- Sharing of information with professionals for referral

- Preservation of the record for later research
- Use in insurance proceedings
- Use in legal proceedings
- Personnel review
- Preparation of training and educational materials
- Replenishment of expendable supplies
- Budget preparation

You may think about this and quickly add more subjects to the list. Ultimately, reports become a foundation upon which organizations depend for their smooth, continued existence.

We should also consider access to reports. We should all be familiar with the strong protections placed on medical records; federal as well as state laws strongly limit access to and release of medical reports. Access to government records varies by jurisdictions; each state and the federal government has laws and administrative codes which dictate the privilege accorded to the jurisdiction’s archived materials. The federal government has the Freedom of Information Act which permits access to collected materials but simultaneously permits the government to act to deny release of materials it considers to be protected, or to redact portions of materials it releases. Conversely, the State of Florida has very open records access; except as exempted by law (active criminal investigative information or intelligence, personal information regarding protected classes of government officials or employees, etc.) all records maintained by governments in Florida are open to public inspection and dissemination.

The field of access should signal the writer to recognize aspects of their writing. What we write may well become public knowledge. Thus, less than professional content may come back later to haunt us. However, one should also understand that open access to records should not be used as a reason to fail to record, or to incompletely record. While the criminal justice system is often very jealous in its protection of information, it is of more value that information be written and available rather than for the writer attempt to maintain the privacy of information only to either not be able to accurately remember it at a later, crucial time, or to have a judge deny the individual’s testimony because there is insufficient evidence of accurate memory after the passage of time.

The various fields addressed by this book have a wide variety of reporting formats. Fire, rescue, and nursing staffs often complete reports which are highly structured, fill in the blank and forced choice, with some narrative to round out the information. Doctors and related professionals often dictate in-depth technical reports. Regulators usually prepare narrative technical reports detailing their findings. Persons in fields such as public works may not prepare routine reports, but often record information in a narrative format as memos or other correspondence.

Reporting for the criminal justice system usually involves a number of considerations:

Accuracy
Brevity
Completeness
Uniformity
Audience readability
Correctness

We will examine each of these, as well as other aspects of reports designed for use in the justice arena.

Whether a report is used to enlighten the counsel in a case, or to refresh one's memory when on the stand 2 years in the future, accuracy becomes necessary. "The patient appeared drunk" does not accurately describe a situation. What made the patient appear drunk? Slurred speech, odor of alcoholic beverages, lack of balance, inability to follow direction, sloppy dress, signs of self-soiling, these should be included in the description – details go to explain accurately why you made the observation. "The patient appeared intoxicated; speech was slurred, his shirt was misbuttoned, and he could not stand unassisted" gives much more evidence of why one reached the conclusion of drunk.

In lieu of accuracy, brevity sounds like a contradiction. However, brevity is relative. Generally, in-depth descriptors are not needed; red will suffice to describe a pair of shoes rather than cherry red. Similarly, superfluous information is not needed. For example, if paraphrasing words of a witness, one need not report parts of a conversation where the witness strayed into a subject that had no connection to the incident. You are not writing *Atlas Shrugged* or *War and Peace*; instead, remember Sgt. Joe Friday from *Dragnet* – "just the facts, ma'am."

Completeness may be considered a corollary to accuracy. Ensure that all facts and details relevant to the incident are recorded. In years or even months, these details will have faded from memory; your reports will be your sole detailed source of refreshment.

To ensure uniform recording of details, many agencies, training facilities, and individuals have adopted conventions to use in describing various subjects. Two of the most common are CYMBAL and Head to Toe. CYMBAL is an abbreviated method of uniformly describing vehicles:

Color
Year
Make
Body
And
License

For example, a "blue, 2005 Ford two door Mustang, Indiana tag XXX123." If there is other, relevant, description, it may be appended to the end, in this case, "significant damage to the right front fender."

Head to Toe is a method of describing individuals. In general, it starts with generic information, race, sex, age,

height, and weight, and then proceeds to describe the individual from the hair to the shoes. Thus, a white male, late 20s, 5 ft 10 in., 180 lbs, blond hair in a flat top style, tortoise shell framed glasses, wearing a yellow t-shirt with cartoon design, baggie surfer shorts, and black tennis shoes. Again, other descriptive information may be appended to the end, such as tattoos, piercings, language or speech details, etc.

In consideration of personal descriptions, consider what constitutes race. It is not uncommon to see or hear a description of an individual as a Latin female, Hispanic male, etc. But race refers to anthropological aspects of the individual, not aspects of ethnicity, language, etc. Consider the variety of Americans of Hispanic heritage; Puerto Ricans and Cubans of European, African, or mixed descent, Mexicans of European, Native American, or mixed descent, not to mention the variety of newer immigrants from Central and South America with again a mix of European, African, and Native American (Asiatic) descent. We do not do one a favor by describing their ethnicity; use race as a physical descriptor, as accurately as possible (generally, white, black [or African], Asian, or Indian [Native American]). As an additional descriptor, if it is known the individual is of Hispanic descent, or any other specific ethnicity, it may be appended to the description. In Chicago, it may well be detail enough to describe an individual as Indian, but in New Mexico to add in the detail that the person is Navajo, Hopi, Comanche, etc. will increase the accuracy of the description.

You may create your own descriptive conventions based upon items you are routinely called upon to describe. The idea of these conventions is to promote uniformity in description, and aid the reporter in remembering the important components of a description.

Most professional groups have developed their own language. It may be intricate, it may be relaxed, but it will often be peculiar to that group. Indeed, especially in a nation as large as the USA, it may vary within that profession over geography – consider the recent controversy over plain English for radio communications, and the rapid evolution in the fire service to call their equipment by the same names nationally, instead of a tanker meaning a truck that carries water in the southeast and an aircraft that attacks a fire with water loads in the west.

In the late 1970s and early 1980s many law enforcement professionals adopted legalistic prose in their report writing. It did upgrade the appearance of the report – where Bubba had been writing reports, Judge Frankfurter was now penning them. However, the reports were only of use to attorneys; not the public, not the associated industries, sometimes not even the officers. A report might start off "At or about 08:17 a.m. Thursday, 18 March, this year, the undersigned, hereinafter referred to as writer, did receive via telephonic communication direction to respond to an incident at 12755

Main St. in this jurisdiction to assist in an investigation being conducted into a purported criminal burglary of the structure at that location.” Much shorter and clearer to write “At 08:17 I was dispatched by telephone to 12755 Main St. to a burglary.”

Remember, you want your report to be sufficiently simple that any audience can read and understand it. This is not to denigrate the audience, but to recognize that industry jargon is not always understood by others in the community. You may refer to ETOH in your notes and medical reports, but a report for dissemination to the justice system should refer to alcohol; even a common abbreviation such as DNR should be written out, as in medicine it refers to Do Not Resuscitate, but in some jurisdictions refers to the Department of Natural Resources.

Despite the tremendous advances in record keeping brought about by the computer, quality issues still abound. In the not too distant past, handwritten reports were the rule. The fear of many to write, less than stellar penmanship, the time involvement to handwrite reports, all conspired to decrease the quality of reporting. However, even as it has improved some aspects of reporting, the computer has introduced new impediments.

Several years ago, a news story was published that commented on the phenomenon that, with the introduction of computers to the work place, the productivity of the American executive has decreased. It appears that, as the workplace has placed more writing responsibilities on the executive, and decreased clerical and secretarial support, executives, neither trained as typists nor to produce finished works, had their output cut as they struggle to complete their written communications. This is, unfortunately, not limited to the office place. Police cars, fire trucks, and ambulances sprout computers as standard, front seat equipment; nurses use tablet PCs to sketch their notes and update charts; physicians tote PDAs and similar units to issue prescriptions and take field notes. All share the same shortcoming with the business community – that they are not clerically trained, but have professional training in other fields that must be documented and shared.

Best in quality are those who use dictated reports which are then transcribed by secretarial professionals who are familiar with the field they work for. This is especially common in the medical community – doctors, physicians’ assistants, and nurse practitioners often utilize dictation with reports being typed by professional medical transcriptionists. Some law enforcement agencies also use dictation systems, with clerical staffs that are familiar with the terminology peculiar to the police fraternity. However, the majority of us do not have the convenience of such systems, and must prepare our own reports.

If practical, sketch out the report in writing before committing it to cyberspace. Most of us, untrained as typists, are

more comfortable with pen to paper; thus ideas will flow smoothly and the material will be the focus of the work, rather than the typing. It is then much easier to transcribe the handwritten material into the keyboard.

Using conventions, such as those mentioned previously, aids in building a readable report. One may also use lists to document various aspects, rather than trying to compose sentences around those details. For example a witness, whose exact words are unnecessary, may be most easily documented by listing bullet points of the interview:

Johnson stated that

- The suspect was a white male, middle aged, tall, heavy, and balding
- The suspect spoke with a Boston dialect
- He last saw the suspect enter a red Mitsubishi SUV and drive west on Newcastle St.

Thus, the interview can be boiled down to a few points, rather than attempting to construct sentences to completely recount its contents.

All common word processing software and a growing number of report writing programs incorporate spell and grammar check. Utilize them. They are not perfect – with a sticky keyboard letters may not get typed, leaving single letters for two letter words, and the system does not understand a word’s meaning to know that you meant there not their or they’re. In addition, its dictionary is composed of tens of thousands of common words – common to the average writer, not a technical specialist. Thus, it will not recognize ninhydrin, or keratoconjunctivitis, or carbonoxysulfide, and you will need to manually add such words to the word processor’s vocabulary. However, spell and grammar check are valuable tools, which should be used to aid in preparing a report that is as correct as possible.

2.3 Photography

Today, the availability of photography is greater than ever before. Film is still available, although digital has certainly secured its place in the world of documentation. Equipment may vary from large format equipment, through single lens reflex equipment with interchangeable lenses, to pocket sized (and smaller) point and shoot cameras. Indeed, few cell phones are produced today without a camera as a component.

This section is not a technical treatise on evidence photography. Many books deal with the subject, addressing topics from shutter speed and depth of field through software systems and zones. However, it will look at a number of considerations that should be at the forefront for anyone using photo documentation.

The first rule of photography is to take photos. If you have no training in photography, don’t understand ISO from JPEG, and are not even sure that there aren’t elves inside the camera

with paintbrushes, having a photo is still a great tool. Is it admissible? Perhaps. That is a lawyer role, to present the facts to a court for a ruling on whether the photography is “legal.” As an investigative tool, it is there. However, if there is no photo, then it is a moot point, and the harm is irreparable.

Equipment was already mentioned. Largely, the type of equipment is not crucial. The rapid growth of digital almost ensures that most persons have some type of digital camera available. Many cell phone cameras are of lesser quality, and definitely lack features, of standalone cameras. However, the photo taken is again of infinitely greater value than the one not taken.

Film is becoming the tool of the technical specialist, while digital is becoming across the board format. Film does retain certain values. First, properly processed and stored, it has a life expectancy far surpassing digital storage. It still far exceeds digital for quality, although digital systems are rapidly closing that gulf.

Early digital photos faced the need to obtain legal recognition. Initially, there was great reluctance to accept digital photography; the possibility of manipulation shadowed the medium until it was accepted. The acceptance was multifaceted. First, protocols were established for handling of digital photos. Second, the courts were made aware of the fact that all photographic prints, at least until the wide spread use of “automated” darkroom systems in the 1980s, were “manipulated” in printing; it is not the media that is flawed, but rather individuals who may lack ethics and corrupt documents.

Among professional evidence photographers, the primary protocol is to record the image in a format that cannot be altered. This is usually a .RAW format, which in turn is further unique to the camera manufacturer. The photographer will transfer the photos from the camera or storage media to computer, often burning it to a CD or DVD, in .RAW format. The next step is to copy the images and convert them to a format which can be manipulated, e.g., .JPEG, .TIFF, or .BMP, with .TIFF considered the best for basic evidence storage. Now these images may be manipulated, while the original file, in the protected .RAW form, is available to show the extent of any manipulation conducted on the photos.

This works for professional grade cameras capable of .RAW storage. However, most point and shoots do not provide for any but consumer formats. Many agencies thus have protocols that images must be downloaded directly to the agency files, and burned to a disc before any other activity may be conducted. The disc then becomes the “original” for long-term storage, while manipulation and printing are conducted from copied files.

Some agencies have begun to use a new in camera media for every case. As the cost of compact flash, memory stick, XD and SD cards has decreased, these agencies find it economical to save the memory. However, recognize that the

media is still potentially subject to manipulation or loss. Thus, copying the contents to a write only CD or DVD does provide a permanent (within the life expectancy of the media) record of the images.

Whether as an agency or as an individual having certain, basic protocols will improve the appreciation of your photographic work. A good source to start with is your local law enforcement community, and local prosecution, which has already worked to meet the needs set forth locally by courts. By showing that the procedures you use stay consistent, and act to protect the credibility of the information, you provide the court with a measure of reliability that helps ensure the admissibility of your photos into the court. It also speaks to your level of professionalism, that you take the interest to ensure the admissibility of your photographs.

As stated previously, this is not a treatise on evidential photography. However, certain points must be mentioned. Obviously, one should strive for technical quality. Out of focus and over or under exposed photos may not be admissible; the court expects that the picture does not require imagination to see detail.

Whenever possible, consider the background and framing. We have all laughed at photos of Aunt Matilda with the palm tree growing out of her bee hive hair-do. There is nothing professional about a photo of a victim’s injuries framed by laughing responders. A photograph of a roll over wreck where the vehicle appears to be in a garbage pile, when in fact it is taken several hundred feet from the edge of the landfill may editorialize a photo in such a way as to render it inadmissible.

Scale is an important aspect of photography, especially when documenting close-up images of items, damage, or injuries. The general rule is, first, to photograph both with and without scale in the image. This provides one an escape avenue should an attorney later argue the photograph is substantially altered from what it initially showed. The scale should never be permitted to obscure or damage the evidence. The best scale is an evidence scale. For example, the ABFO No. 2 Photomacrographic scale, an “L”-shaped scale, approximately 10 cm along the inside of the leg, with black and gray color patches for color balance and a circle to ensure perpendicularity of the photo, was designed by the American Board of Forensic Odontology to aid in proper documentation of bite mark evidence.

One does not need a rule to act as scale. Many a photo has been taken using a common item – a pencil, a coin, etc. – to provide scale for the viewer to understand the size, as well as to provide a tool for the photo printer to use to print the image life-size. It is important that the printer have access to the scale, especially if it is an irregular item – a pen, a sharpened pencil – so that it may be directly compared to the image to ensure appropriate enlargement. It is also important that the size reference of the scale be visible to observers of the

picture –metric or English, millimeters or centimeters, so that there is no confusion for the viewer.

Photographs serve two major purposes. First is to provide investigators a visual reference to the incident, one they may consult whenever the need arises. The second either is to illustrate to the courts scene conditions which otherwise may not be able to be preserved for the court, or may not be convenient to permit actual viewing of. However, the courts also have taken consideration of the nature of photographs. Not only the technical quality of a photo, but also the potential of a photo to scandalize a viewer, and thus the potential to inflame and prejudice a jury, are considered by the judge in determining whether to permit publication of photos to a jury.

In the 1970s, Ronald K. Wright, M.D., J.D., was serving as the Chief Assistant Medical Examiner for Dade County, Florida. In one incident, a young boy was kidnapped from his parent's car, taken to an uninhabited area, sexually assaulted and killed by throat slash. Dr. Wright conducted the forensic medico-legal autopsy on the child. After conducting the routine photo documentation of the injuries, he recognized that the nature of the injuries, especially the copious blood flow, would render the photos inadmissible in court. Thus, he and his staff carefully cleaned the child and then staged the child's body in such a manner as to have a noninflammatory background. The extent of the injury could be clearly observed, yet was as emotionally sterile as a photograph of such a wound could be. Thus, the injury was able to be presented to the court for the jurors to better understand the severity of the attack, while not scandalizing them and prejudicing their thoughts [2].

It is important to note that no cleaning of such an injury, scene, etc. should take place for documentary purposes until the subject has been documented as is. Obviously, medical necessity will often result in injuries being altered before there is any opportunity to document them. Further, medical considerations may preclude any opportunity to document some wounds, as their protection may take precedence over evidence documentation. However, when the opportunity is available, injuries, scenes, etc. should be documented prior to any attempts to alter them to make them more palatable for documentation. As emotionally charged as a photograph of a bloody or otherwise offensive scene may be, it must be documented as encountered whenever possible, and only after should attempts be made to produce an emotionally neutral photo.

2.4 Video Documentation

Video has become a ubiquitous feature in today's world. Whether the news helicopter covering yet another police pursuit, a small digital camera accompanying a budding film producer, or one using either a point and shoot camera or cell phone's video feature, video is readily captured. Soon after,

it appears on You Tube, the evening news, or some other venue for the entire world to see.

Despite this growth in movie madness, from an evidential aspect, it cannot replace the still photograph. For a variety of reasons, the quality of a still image is much greater than that of a video frame grab. A still photo also provides the viewer the opportunity to study the details of the image for as long as necessary, while video requires either a freeze frame or to replay the segment of interest.

With that said, video still has value. First is the simple fact that, if a video is available and still images are not, then it is the best evidence. Video also has roles where it is independently valuable. Arson, bomb, and homicide investigations often use video of crowds and onlookers to develop potential suspects, to locate witnesses, and to document and thus build credibility for witness statements. Many jurisdictions use video recording to document statements, especially interrogations, where the video is able to show that no improprieties accompanied a confession. Video is often used in undercover investigations to capture the exact illegal activity involved. Live action is recorded by dash cams, aerial cameras, and an ever growing variety of devices to document incidents, protect officers against claims of improper action, and support other documentation of incidents. Surveillance video provides investigators a tool to both review a crime and identify actors. Finally, video is a valuable tool for documenting reenactments, whether of an incident itself, or of functioning, such as of a bomb.

As with photography, this is not a technical tome on application; the myriad uses of video are such that it is beyond the scale of this, plus there are excellent resources available. What must be considered, as with photography, especially digital photography, is the procedural handling of video.

The first step will again be to ensure that the video is the highest quality possible. A dedicated video camera will produce much higher quality images than a cell phone camera; thus for any planned video shoot, a video camera should be used rather than a lower quality substitute. For other purposes appropriate equipment should be used. Surveillance is a complicated field, there is a wide variety of equipment available, some specific to certain purposes; a specialist in video surveillance may be a valuable asset when installing such a system. Similarly, high speed video, for slow motion studies, is a very specific area. The equipment is quite expensive, and often not easily obtained. Academic facilities that specialize in engineering may have the equipment available and be willing to assist in the work, as may engineer and scientific businesses. The Brevard County Sheriff's Office Bomb Squad, which covers the Kennedy Space Center (KSC), has been assisted by the staff at KSC when a case reenactment benefited from use of high speed photographic equipment.

The other major consideration must be handling and storage. Video is recorded on tape, media cards, CDs and

DVDs, and fixed memories of some cameras. The first step must be to ensure the recording is transferred to a secure storage format. Video tape should have its record protect tabs secured to protect from over taping. It is often a good step to burn a write once CD/DVD from any original to provide a secure “original” from which working copies may then be burned for manipulation. As with still photography the permanent “original” should be stored in a safe manner, and only accessed to burn working copies, or to allow verification of the contents of the working copies.

2.5 Sketches and Similar Materials

Sketches, maps, plans, and similar materials are often used to complement reports and photographs. These are generally two-dimensional representations of a scene, which are “cleaner” than photographs by nature of not being crowded with unnecessary components (furnishings, trash, etc.). They also have the important role of being able to deliver a more accurate concept of size and relationships than a photo can.

A sketch may refer to any of three forms. The first, the rough sketch, is generally a hand drawn sketch of the scene by the on-scene responder. If dimensions are important, they should appear either directly on the sketch or as an adjacent chart, to permit the accurate drawing of a proportional representation later from these measurements.

Measurements may be collected in any of several methods. Straight line measurements, where items are located along a baseline, are of the least value, although they may be a tool for locating items such as doors and windows along a wall. Rectangular coordinates use a baseline, which may be artificial or may use a wall or some similar component of an existing structure. From this baseline, items are located based upon baseline distance and then a distance at a right angle from the baseline to the item.

Triangulation improves upon the rectangular coordinate method by bringing measurements from two fixed points, often corners of a room. The intersection of two lines, one 18'3" from the northeast corner and one 7'9" from the northwest corner can only lie at one position within the location. This method makes the collection easier, as one does not have to ensure right angles be maintained along the path, just straight lines, and it lends itself to collection by a single person.

Polar coordinates use a simple system of locating an item from a fixed single point. Each item of interest or need is located from the fixed point by a single length measurement, with a compass bearing based at the fixed point. Thus, a measurement may read 62'3" at 127°. Polar coordinates have long been used for exterior scenes, especially large expanses, where the system simplifies the process. They also appeal for use by a single sketch maker. As a bomb investigator, the

author finds it a very useful system for locating postblast evidence, working from the center of the crater.

The tools used in collecting measurements are important. Tape measures should be of materials which do not stretch, usually steel. Other measuring tools such as yardstick, rulers, etc. should be of material not prone to change, especially the shorter rules. Steel 6" and 12" rules, or the forensic rules made of plastics, are excellent as they will not change in size in response to changes in humidity.

For larger areas, measuring wheels have often been used. Their selection should reflect the location. Small wheel devices (usually about 2.5" diameter wheels) work well for interiors, cluttered areas, etc. Large wheel devices (usually about 18" diameter) are usually best in exterior areas, where the large wheel finds better traction.

Laser and similar devices are now available for measurement. Before selecting a laser as a measurement tool, carefully explore its accuracy. A laser being used to obtain interior dimensions should be accurate to no less than a quarter inch. Exterior use of the laser permits a bit less accuracy, but still, the greater the accuracy of the instrument the higher the quality of the product; a laser capable of accuracy within 1% is of most value.

Other instruments may be used in developing the sketch. It is not unusual to bring in a surveyor to map an area; this results in a high quality product, and may have relevance to questions of exactly where a scene was located. Laser-based systems, some incorporating digital or video recording, such as total stations, are in use with many agencies. They provide convenient recording of the scene, depending on their methodology. They also provide for versatile output of the material, including some three-dimensional animated products. However, they are limited by their cost; indeed, many agencies find them as a tool of the traffic investigation section, which will then respond to other scenes to assist their criminalistic investigators.

The draft sketch may be substituted as a final, finished sketch; this will depend upon the needs of the case and the system. Generally, the draft sketch will be a cleaned up product; it will be drawn to the scale, locate items of import to the case, exclude other, irrelevant items, will not have confusing measurements on the sketch proper, will have a legend with case information and general information such as north, a statement that the sketch is proportional but not to scale (unless it is prepared by a surveyor, draftsman, or engineer), a statement of approximate scale, and will bear a key which will identify the various points of interest found on the sketch.

The final sketch may, as noted, be the draft sketch. However, it is often prepared for specific use; it may be enlarged for easy viewing, colored, turned into a three-dimensional model, or otherwise prepared to suit the needs of the end user.

A sketch need not be an intricate, measured document. Crime scene investigators routinely draw small sketches on the reverse of their latent fingerprint lift cards. These sketches are not scaled, but instead show important relationships. For example, the direction of fingerprints may have an important bearing on a case; fingerprints pointing toward a window on an inner window sill may be argued as having a legitimate excuse. The same fingerprints, pointing inward on a window sill that is the point of entry, become hard to explain away. In this case, the simple sketch suffices to illustrate the condition.

Maps and drawings such as blueprints and building plans may be very useful to a case. The wide access to map programs (Yahoo Maps, MapQuest, Google Maps, etc.) and of aerial photos (Terra Server, Google Earth, etc.) makes illustration of reports much easier. However, court admissibility may be contentious, especially if one is attempting to introduce it as an accurate (i.e., distances) representation of the scene. If this is necessary, contact the source of the material, be it Rand-McNally, Google, local government GIS, etc., obtain a certified statement testifying to its accuracy and authenticity, and perhaps have the appropriate cartographer or draftsman on call for court testimony. However, in many cases where one does not intend to use the item to establish exact measurements but only to show general relationships among locations, the court will accept the use of the map or other item.

All areas of the public safety field routinely use sketches and maps. Be it a fire chief planning the fire ground, the doctor locating injuries on a chart, or an environmental engineer plotting an area for reclamation, the sketch may prove a valuable item at a later time, as well as its value during the operation.

2.6 Records Management

Criminal justice records often come under additional regulation than other, routine records. Reports may contain information which is considered legally privileged – identity of

protected victims and witnesses, information that is not public record pending court discovery, intelligence information that may compromise ongoing cases if made public, etc. Every state has its own laws, regulations, and court procedures detailing the handling of records, defining what is a public record, etc. For example, Florida has the most open public records laws in the USA; however, it also has specific exemptions for what is defined as active criminal investigative and criminal intelligence information, permitting an agency to not reveal such information until it has lost its active value. Florida also provides that certain information is never public, such as the identities of victims of certain crimes, information which must be purged from a record which is being released to the public.

For the agency that finds itself producing records that are of significance to the criminal justice system, the best advice is to contact a larger local police agency, which has already had to establish records and evidence maintenance protocols. It is also wise to contact the state's records management personnel, who generally oversee all governmental records management, and obtain any materials they have for guidance in the matter. It is also a wise act to reach out to the state's Attorney General, which often has attorneys who specialize in public records management and thus can provide valuable guidance.

Materials such as film, digital images, audio recording, video recording, etc., may be a record or may be evidence. This becomes especially crucial when the agency is becoming more active in producing materials that have value to the criminal courts. Again, seek the advice of well-grounded agencies, state regulatory agencies, and legal counsel to help establish the appropriate records and evidence management program for your jurisdiction.

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3.1 Classifications of Evidence

Wikipedia defines “evidence” as “Anything admitted by a court to prove or disprove alleged matters of fact in a trial” [1]. This is a wide encompassing definition, with many subsets of definition or consideration.

The terms direct versus circumstantial are often heard. Direct evidence refers to evidence which straightforwardly proves the existence of a fact [2]. A witness, stating “I saw the defendant shoot the victim” is providing direct testimony. Conversely, circumstantial evidence infers a fact, but does not directly prove it [3]. A fingerprint on a scene is evidence that an individual was present, but may be refuted by a showing of the individual’s legitimate presence on the scene. Thus, circumstantial evidence may need further substantiation, whereas direct evidence stands as evidence on its own.

Evidence is also classified as to its technical status. Documentary evidence refers to a written item with evidential value [4]. A contract, a will, or another legal document are all forms of documentary evidence. Demonstrative evidence, also referred to as physical evidence, is a form of circumstantial evidence that refers to physical items which the trier of fact can see, and which speaks for itself [5]. Photographs of a crime scene, a knife recovered from a robbery scene, or the bullet recovered at autopsy from a homicide victim are all forms of physical evidence. Testimonial evidence refers to statements made in regards to an incident; witness statements, statements under interrogation, and confessions are all forms of testimonial evidence.

The remainder of this chapter concerns itself with technical, rather than legal, issues, except for those legal aspects directly affecting evidence collection or storage. Until recently, only arson investigators among all the others supporting the public safety arena concerned themselves with evidence gathering. But times are changing, and bring with them new responsibilities for all in the entire public safety network.

3.2 Documentary Evidence

In the definition of documentary evidence, it referred to items of legal value, such as a will, contract, etc. Within the criminal justice sphere, some items may be documentary evidence, or they may be business records. Other items, although documents, will always be treated as demonstrative evidence.

When is a document demonstrative, rather than documentary? First, when it is not an official document. A suicide note, a robbery note, written notes collected at a scene and any other written material, not being an official document, will always be treated as demonstrative evidence. Second, we must also recognize that some documents, appearing to be legal documents, may become demonstrative evidence. These would include a document suspected of being fraudulent or forged, perhaps a will or prescription. It may be a document, such as the federal Bureau of Alcohol, Tobacco, Firearms, and Explosives ATF Form 4473, which is completed during a firearm sale, where the purchase was illegal and the document needs to be processed for fingerprints, DNA, or handwriting to attempt to link the suspect to it. In any of these situations, the evidence will be treated as demonstrative evidence, preserved for criminalistic exams.

Often, the question will be, is this document a record, or evidence? To determine the answer will take careful review of several factors. First, how does local law apply? In Florida, the public records law defines any record maintained or produced by a public agency as a public record, with the exception of specifically exempted materials, such as law enforcement investigative records. Records such as fire and rescue run reports, or EOC operations logs, are a public record, must be retained per schedules published by the State of Florida, and thus would not normally need to be treated evidentially.

A second consideration is the local record keeping protocols. Are records generated by the agency maintained in a professional manner, where they may be accessed

throughout their life as determined by law? Small agencies, volunteer organizations, and similar groups with limited administrative function may find that records may be collected as evidence for safekeeping in a case.

Third is to ponder the role of the record in the case. Most records will be acceptable in a copy, possibly a certified copy. A fire run report, showing that the fire department responded to an incident and invested certain resources to that call, will usually stand as a business record. However, fiscal records with bearing on a criminal complaint may need to be treated as evidence, the originals being used for court purposes.

So a record in your possession must be treated as evidence – how should it be handled? Do not merely hand over the record. To do so leaves a void in the records system, denies others with need of that information access, and over time, as memories dim, creates questions about where it has disappeared to. Instead, first photocopy the entire document. If need be certify this copy as true. Then, attach to the copy the legal authority for its removal. This may be a subpoena, court order, or merely a receipt. If the latter, photocopy the original top page, as many receipts are multicopy, the submitter receiving a copy which may be less than readable. Replace the original in file with the copy and its attached documents, thus giving a firm record of where the original has been assigned.

The original, now a piece of evidence, must be treated evidentially. If it has criminalistic value, it should not be handled with bare hands; instead gloves, forceps, or other methods should be used to transfer it to an appropriate package. This may be a large envelope, or a suitably sized plastic bag. If it does not have criminalistic value, consider having the keeper of records initial the reverse of each page, thus giving a manner to identify the item at a later time as the original surrendered from the files. Before placing into the envelope or bag, the container should be marked, usually with a case number, time and date, short description, and signature or initials of the individual packaging and sealing it. Then place the item into the container, seal the container, and sign or initial across the break at the seal. Taping and then initialing the seal is an excellent method to show that it has not been molested after packaging. Never place a document that may have value for criminalistics anywhere that it may be physically handled or may be written over (such as inside your notebook).

3.3 Demonstrative Physical Evidence

When thinking of evidence, the most common concept is that of demonstrative evidence, often referred to as physical evidence. Physical evidence varies, from microscopic material such as DNA to gross size such as vehicles. Where 30 years ago public safety responders rarely dealt with

physical evidence, today they find themselves routinely recovering evidence.

Dr. Edmond Locard was a French physician who studied criminology and devoted his life to criminalistics. In 1910, he established the first crime laboratory for the police in Lyons, France. Locard will forever be remembered for establishing Locard's Principle of Exchange, which stated

Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibers from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. All of these and more bear mute witness against him. This is evidence that does not forget. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong, it cannot perjure itself, and it cannot be wholly absent. Only human failure to find it, study and understand it can diminish its value [6].

In this section, a variety of types of physical evidence will be reviewed; each will be assigned to its own subchapter to make reference easier. As each variety is discussed, considerations on safe recovery, handling, and packaging will be examined.

3.3.1 Biological Materials

From the aspect of fire and EMS providers, biological materials are one of the most common forms of evidence they deal with. Whether blood from a violent incident, semen from a sexual assault, saliva transferred during a battery or sexual incident, or blood drawn for alcohol or drug testing issues, it is a commonly encountered form of evidence.

Body fluids and tissues present the responder with a number of challenges. Bloodborne pathogens (BBPs) are a serious consideration when dealing with any blood, blood stained, other body fluid, or tissue. Greater discussion will be made of overall BBP protection in a later chapter.

In this day of DNA, the need to avoid cross contamination of evidential material with one's own DNA is crucial. Fire and EMS personnel routinely use gloves to protect themselves from the hazards of BBPs. These same gloves help protect against transfer of the responder's DNA to evidence. However, it is important to recognize that soiled gloves, from either touching oneself, another responder, or during treatment of another patient may result in the transfer of DNA. If possible, such activity should be avoided, for safety as well as evidential reasons. Fresh gloves should be donned on a regular basis during activity at a scene. However, this is not always possible. If cross contamination occurs, it is important to understand that investigators may later need to obtain standards from the response crew for use in eliminating innocent DNA from the results of the investigation (Fig. 3.1).



Fig. 3.1 Thermal cycler for amplifying DNA



Fig. 3.2 Robotic multiprobe liquid handler for DNA extraction

Proper packaging of tissue and body fluids is crucial. Body fluids, which are present in tissue as well as wet samples, are subject to putrefaction. During this decomposition, the evidential value of the material will be lost; both traditional serological components and DNA will be destroyed. Further, this will result in a package for the laboratory criminalist which will not earn the responder any friends on that end of the chain. The odor will be similar to that of decomposed flesh; not what a criminalist wants to have in the laboratory while working that and other cases.

The most important aspect of packaging of wet fluids or tissue is to allow it to dry completely. The investigators have the convenience of hanging bloody clothing and other moist items in a safe, secure location and permitting them to dry naturally before further packaging. Obviously, this is not a reasonable expectation for first responders. Although paper is a wonderful packaging medium for moist materials, allowing them to naturally air dry through the porous nature of the bag or envelope, it is not an item normally available to fire and EMS responders; indeed, the most likely packaging material on an ambulance or fire truck will be red biohazard bags. If a crew finds itself recovering bloody clothing or other contaminated items, such as during disrobing of a patient, drop the items into plastic bags, but do not seal them. When turned over to law enforcement, the bags being open will first be obvious as to their need for sealing and second their contents will be obvious to the officer to properly handle. Simultaneously, tell the receiving officer that the bag contains clothing moist with biological fluids.

A second consideration in packaging any evidence contaminated with body fluids or tissues is to ensure that others coming in contact with it recognize that it is contaminated with BBPs. Using red biohazard bags is obviously a good way to send this message. However, a responder may not have bio-bags available, or the evidence may not fit into one. At that point, it is important that the responder collecting the evidence communicate to whomever they surrender the

evidence to that it is biohazardous; also, if they have access to a marker, they may want to mark the container as biohazardous, further sending the message of the nature of the evidence until it can be repackaged appropriately (Fig. 3.2).

Not all evidence may allow itself to be safely packaged in a bag; size or other aspects may preclude a bag from being the package of choice. For example, a crew may encounter a bloody knife at a scene. Seeing safety in its removal from the scene and without a law enforcement representative on the scene yet, they may elect to collect the knife. However, the edge of the blade also presents a hazard, indeed a hazard that may compound the danger of biohazards. Thus, the crew may elect to wrap the blade, or entire knife, in a piece of heavy cardboard, and then tape it closed, to ensure that during handling no one may be slashed by the sharp blade. In the same manner, a spare sharps container may be pressed into service if large enough, and used as a BBP hazard evidence container.

Other contaminated sharp materials should also be handled to ensure their safety from both the sharp edges and biohazards. Broken glass, sharp shards of metal, even sharp sticks should be packaged in such a way that they do not expose responders to their dangers, and when passed along this information is communicated.

3.3.2 Firearms and Associated Evidence

Firearms, cartridges, casings, and bullets are commonly encountered at scenes of violence. In a perfect world, fire and EMS personnel would never enter a scene of violence until police were on the scene. However, in the real world, this is not always practical. Rural responders may arrive considerably earlier than the nearest patrol car, and find the golden hour rapidly fading as they await the arrival of an officer from across the county. In the city, arriving even a minute prior to the patrol car may, under certain social situations,

Fig. 3.3 Robotic multiprobe liquid handler for DNA quantitation



expose the crew to taking action before the arrival of law enforcement. In either of those situations, a crew may have to make decisions balancing agency protocols and moral considerations. During treatment, whether prehospital or in the emergency room, evidence may be encountered and must be dealt with professionally. And finally, calls are often dispatched improperly, whether due to problems with communications personnel, or just inadequate information being provided to the call takers dispatching the incident.

No emergency responder, other than law enforcement, should be expected to handle firearms. Indeed, no one not properly trained in the safe handling of firearms should manipulate one; this is a simple safety precaution, as the National Rifle Association's Eddie Eagle instills into children. Also, no one not comfortable with firearms should handle them; again, this is safety, as fear of them may lead to less than safe or secure handling.

Many emergency responders are familiar with firearms. First, there is a large block who own firearms, whether for defense, hunting, or target shooting. Many are also military veterans, and indeed police veterans, who have considerable exposure and training with firearms.

If a responder does not have experience with firearms, but desires to, if only to permit better job performance, there are a number of paths available. Often a friendly gun shop will take the time to teach the basics, especially to an emergency responder. Many communities have firearms training programs conducted either through the local school system or a local community college, which integrate classroom and range time, thus giving the student a varied exposure. Finally, and most often the best route for emergency responders, is to visit the local law enforcement agency's firearms training staff. These folks are highly experienced in firearms and their

function, are skilled instructors, and can understand the specific needs of other members of the public safety community in regards to firearms. Thus, the medic, firefighter, nurse, or other whose job may expose them to firearms have options to be looked into if they feel that, with training, they may become comfortable enough to handle firearms, especially as part of their job.

What to do if there is no law enforcement presence and the crew is not comfortable with firearms? If there is a civilian at the scene, in whom the crew has complete trust and who is comfortable with firearms, that individual may be asked to help. Otherwise, the crew must stand by until the arrival of law enforcement. This may be a difficult situation, especially as the firearm may be located on the patient, and thus exposes the crew and public to a hazard in the event the patient is a perpetrator or may be prone to involuntary twitches.

Firearms may be the home to a multitude of types of evidence. They may have fingerprints, DNA, blowback blood and tissue, fiber evidence, and potentially other transferred evidence. The firearm itself has toolmarks, in the barrel if a rifled type firearm, on the extractor, ejector, ejection port, magazine lips, and on the breechface, which it transfers to bullet and casings.

Investigators want to preserve evidence, to allow it to tell its story. However, life safety, be it of a patient, the responders, or the public always take precedence over evidence. Emergency responders should attempt to minimize damage to evidence; however, safety should always be the primary consideration.

Generally, fire and medical personnel are wearing gloves whenever handling patients. These gloves will protect against depositing one's own fingerprints or DNA on the firearms; they are not a guarantee against destroying or deleting that



Fig. 3.4 A comparison microscope, the primary tool of the forensic firearms examiner, permitting side by side comparison of the minutiae appearing on known and crime scene evidence

that is already there. With this understood, one should first determine the type of firearm, and then safe handling procedures for it. Whenever possible, a firearm should be handled as designed, that is by the grip surface. This provides safety, as it will usually be the surest surface to hold it by, as well as protecting transient evidence, because many grip surfaces are checkered or stippled for traction, and thus less than good surfaces for fingerprints, hairs, etc.

If the grip is not a viable method for handling the firearm, use the most secure area on the firearm to handle it. If this means gripping the barrel, and thus possibly destroying fingerprints, and brushing off DNA, hair, and fibers, so be it. Safe handling is paramount. Ensure that the barrel of the firearm is always pointed in a safe direction; never at a human, preferably at a surface that can safely absorb a discharge.

Never attempt to pick up a firearm by inserting something down the barrel and then picking it up. First, this is potentially damaging to the interior of the barrel, a valuable source of evidence. However, even more important, it is not a secure method of handling a firearm. The firearm may rotate on the pencil or other rod, allowing the firearm to possibly crash into a surface and unintentionally discharge.

Often, the emergency responder will only need to secure a firearm to allow patient treatment to continue until the arrival of law enforcement. This may permit the crew to merely move the firearm away from the treatment area. Other times, such as street scenes or less than secure scenes, it may be best for the crew to secure a firearm in a lockable compartment on a truck. The idea is to both remove the firearm from the scene, and to ensure that it does not disappear; not only may the firearm have evidential value, but as public safety personnel there is a vested interest in not reintroducing a weapon into an insecure environment (Fig. 3.4).

Responders in rural areas may not have the time ability to await the arrival of law enforcement, and may need to collect

the firearm as evidence. A member who is both competent and comfortable with firearms must do this. First, the firearm should be made completely safe. This entails, first, removing the magazine if so constructed. If a revolver, the cylinder should be opened and its contents removed. If possible, note the position of cartridges in the cylinder, which is at 12 o'clock, and what is in each of the other positions of the cylinder; this may have important value to investigators later. Tube feed firearms have their own methods of emptying; the important aspect is safety, and ensuring that all cartridges are removed. Break action firearms, especially as shotguns, should be opened and their chambers cleared. At this point, the contents of the chamber should be removed; typically, this will entail working a bolt, pulling back the slide, or working the pump forearm. Once the chamber has been cleared, the firearm should be visually inspected to ensure that all cartridges have been removed from it.

Ammunition should be stored separate from the firearm as insurance against a round slipping into the chamber and becoming an unexpected safety hazard. If size permits, such as a handgun, bag the firearm, and bag the ammunition separately. If a long gun, and bagging is not possible, secure the firearm in a compartment of the response vehicle where it may safely ride. Once secure, the crew can continue treatment and transport, and turn the firearm over to an officer when practical.

Responders and emergency room personnel are much more likely to deal with other forms of firearms evidence, and need to understand its proper and safe handling. Indeed, this evidence may follow them into the rig, the ER, or even into the OR, and should not be overlooked.

First, consider the variety of evidence produced in a shooting. The firearm itself, as noted above, may bear fingerprints, touch DNA, fibers, blood and tissue, and hair. Unfired cartridges or shotshells may bear fingerprints, DNA, and possibly toolmarks from the firearm if the cartridge has been cycled through the chamber previously. Fired cartridges and shotshells may have fingerprints, DNA, and the toolmarks transferred from the firearm during the act of shooting. Bullets and shot may bear the toolmarks from the interior of the rifled barrel, DNA, or other serological evidence, and may bear impressions from intermediate targets such as clothing, screening, etc. Shotgun wads, especially plastic shot cup styles, may also bear toolmarks transferred from front sights that are anchored through the barrel, or from amateur gunsmiths cutting a barrel with a hacksaw or another tool (Fig. 3.5).

In addition, the passage of projectiles creates secondary evidence. Depending on the type of projectile and material punctured, the hole may be a somewhat accurate indicator of the size of the projectile. As these projectiles pass through material, they will deposit dirt, oil, and grease. Further, depending on the distance from which fired, burning and

Fig. 3.5 A NIBIN (National Integrated Ballistic Information Network) station, used to enter cartridge case images and projectile images into the data base jointly maintained by the ATF and FBI, permitting national and even international search and comparison of recovered crime scene firearms evidence and also firearms recovered during investigations



unburnt powder may embed itself into the target and a fine residue of smoke like material may be deposited. If the projectile has passed through intermediate targets, such as walls, investigators may also be able to reconstruct its trajectory through the use of string or lasers.

An often abused piece of evidence is clothing. In a shooting, clothing will usually be the first plane crossed by the projectile. It may tell investigators much; approximate caliber, number of shots, and through chemical and practical tests the distance from which the shooting occurred. Improper handling may damage or destroy its evidential relevance.

The first, and most important, consideration is the removal of clothing. Many an emergency medical provider has taken the apparent shortcut of inserting bandage scissors into a bullet hole (or damage from an edged weapon attack) and cutting a garment off the victim. Does it save time? No, as cutting at any location will have the same area to travel, and indeed, using a bullet hole may require two separate cuts. Not only may this damage forensic value, but may cloud information of value to treatment – how many shots were fired, how often was this patient wounded? Many other methods are available...cutting away from any signs of damage, trimming off buttons and removing as designed, or just slipping the item off without damage.

Handling should also be conducted with care. A bullet may have exited the patient and be concealed within the folds of clothing. Similarly, a cartridge case, ejected after firing, may be secreted on the patient. Residue of gunpowder and primer make up the material to be tested for determining the distance from which a shot may have come; this residue is minute, lightweight, and subject to displacement by too



Fig. 3.6 Horizontal shoot tank, designed to permit firing into a pool of water to collect fired projectiles, thus giving the firearms examiner a known standard of the characteristics of a rifled barrel for comparison to an evidence projectile

aggressive handling. During removal and handling, be as gentle as the situation permits, and place the item into a bag to maintain its integrity. If there is a need to examine the item, for example, to determine number or placement of bullet holes, or if exit or entry, hold the item over the bag or another safe location where any lost materials will be preserved.

Bullets, shot, and cartridge cases are often encountered. It is not unusual for a cartridge case to be found tangled in a patient's clothing, or for a bullet or some shot to either have been captured by the clothing, or have exited the patient and then stayed within the clothing. It is important to understand

that these are somewhat delicate; they are manufactured from soft metal, retain marks transferred to them from the firearm, and could have these marks damaged or destroyed by inappropriate handling. The best tool to recover loose bullets, shot, or casings is a pair of gloved fingers; they are soft enough to not mark the evidence, they are protected against transferring DNA or receiving BBPs, and they have the manipulative ability to firmly grip the evidence. This may not be possible, especially in the ER or OR, where medical professionals may have to use greater force to remove projectiles that are lodged in bone or other very firm tissue. As always, medical needs overshadow evidential concerns, and forceps, hemostats, or other tools may need to be used to pry or pull the projectile from its resting place.

Cartridges, casings, and projectiles should be packaged with consideration for their evidential value. At the least, they should be packaged in such a way that they will not be lost. Then, especially if a hard plastic container is used, they should be buffered by placing them in cotton, tissue, or similar soft wrapping that will not potentially damage toolmarks impressed into the softer metal. This packing may also protect fingerprints or DNA from damage or loss.

3.3.3 Edged and Other Weapons

EMS, firefighters, and emergency room personnel will often encounter other weapons. They may be worn by a patient, or imbedded in the patient. Thus, handling may have different considerations.

First, consider a weapon worn by the patient. It presents a safety hazard to emergency and medical personnel, and should be made safe and stored in an appropriate manner. Being as circumstances dictate procedures, this may not apply to a common pocket knife as carried by many individuals as a tool, and which may be stored with patient effects. But when the item rises to being considered a weapon, personnel need to ensure their safety as well as provide for the safety of the public and security of potential evidence.

First and foremost must be YOUR safety. Many a fool has carried a butcher knife slipped inside the waistband. Recovering it must be done to ensure personnel are safe. Also, be aware that this may have been used in a prior offense...it may have body fluids on it, and thus present BBP hazards. Use protective gloves to handle the item, and as much as possible avoid contact with any sharp edges. However, also handle the item with full control of it.

Packaging of this item should be in respect to its potential hazards. Wrapping it in heavy cardboard, taping the cardboard secure, and then placing it in a large envelope keeps it from endangering others. Conversely, one may take a large enough cardboard box and use wire, string, or cable ties to secure the item within the box, so that the item cannot slide

about and puncture the container. Tape the box shut, and if necessary in either case, overpack it in a BBP red bag for warning.

Knives, glass, other edged weapons, screwdrivers, spear like items, etc. are often found imbedded in victims. In most cases, medical authority will prefer that the item remain in the victim until transported to a hospital, where it may be medically safely removed. As has been stated before, preservation of life takes precedence over evidence, and practitioner safety similarly takes precedence over preservation of evidence. If it is possible, remove the item with consideration for possible evidence; fingerprints, hairs, fibers, even transferred DNA may be later recovered.

Packaging should be conducted as above if an edged weapon or a spear like device. If broken glass, it is best placed into a heavy cardboard box; if possible cushion it with paper, cotton, etc., even interleaving the evidence and packing to attempt to keep the pieces separate.

3.3.4 Sexual Assault Evidence

Many sexual assaults will see prehospital treatment and transportation; most, although unfortunately not all, will see medical treatment, if only as part of the investigative process. Thus, fire, rescue, and the medical communities will often deal with these especially heinous crimes.

Sexual crimes have always produced physical evidence of value to an investigation; in today's era of DNA, it is much more specific evidence than ever before. However, it is the proper collection and preservation of this evidence, allowing the criminalist to identify its source, which begins the trek to solution and apprehension of the offender.

The roles and activity of the first responder and the professional working in a medical facility are quite different. Although there is some similarity in technique, as will be seen, each is working in a very different arena with different expectations.

First responders are emergency responders; their primary responsibility is to stabilize and transport a victim to a treatment center. Thus, their involvement will be limited to that which fits within their activity. However, their activity may have considerable bearing on evidence gathering in a sexual abuse investigation.

The first step will generally be the recovery of clothing. Clothing inhibits treatment protocols, and must be removed. In controlled circumstances, it is preferable that each item be collected separately, while over a disposable sheet that may become evidential as well; but this will rarely be an option in the field. However, each item should be collected as carefully as possible and placed into a bag where trace evidence such as hairs or fibers will be captured rather than lost. As described in Sect. 3.3.1, clothing or other materials wet with body fluids

should not be sealed in a plastic bag, but rather the bag left open to permit air-drying, and when transferred to law enforcement, the officer made aware of its condition.

Responders should be careful in their collection of clothing. This is especially true of items such as undergarments. During an assault, the offender may forcefully pull down or remove garments, causing damage, especially to elastic such as waistbands and bra straps. When examined in the laboratory, the criminalist will be able to report on the nature of the damage and that it was not due to normal wear and could indeed have rendered the item unwearable.

When removing clothing care should always be taken to not damage potential evidence, as described in Sect. 3.3.2. When removing clothing from the sexual assault victim, attempt to cut it away from obvious damage. If damage is not visible, select a wider area that is less likely to suffer from damage during forcible removal. This is especially true in regards to delicate items such as panties, where the very side most panels will often be damaged by overstretching during violent assault.

Field responders must be aware of potential trace evidence that may be easily lost or destroyed. Body fluids, hairs, and fibers are almost always transferred during these crimes. During the investigative physical examination, the head and pubic hair will be combed to collect any loose hairs, fibers, or dried fluids, a sterile comb being used to sweep the materials into an open envelope. This is not practical for the emergency medical responder; however, by maintaining the patient on a clean sheet from head to toe, this sheet may then be collected at the conclusion of the transport and turned in as possible evidence.

Semen, saliva, blood, and other stains may be found on a patient. This may be observed as transferred blood, an area with a bite mark, dried, crusty seminal fluid somewhere on the body, or other stains which may have evidential value. Very often medical treatment protocols may require cleansing of injuries, which will destroy this evidence. If at all possible, the medic should attempt to collect these stains. First, use a swab, cotton pad, or cotton ball, moistened with either sterile saline or sterile distilled water, to wipe the area, removing the stain. Then drop the swab, pad, or cotton into a clean paper envelope, tape it closed, mark the exterior with information as to where the swab was collected, and submit it to investigators as soon as practical.

As noted previously, the overall role of the emergency medical responder limits their activity with the sexual assault. However, the role of the medical professional in a facility has expanded greatly over the past 30 years. An important step was the establishment of the Sexual Assault Nurse Examiner (SANE) program. In the 1970s, several registered nurses (RNs) recognized that the medical community was not sufficiently responsive to the needs of the sexual assault victim; victims were waiting long periods of time for examination,

being ignored for their personal needs during that time, many practitioners did not want to treat victims for fear of spending time in court, some were not understanding of or sympathetic to the victim, and none were conversant in evidence collection or handling. Thus, the SANE program was developed, seeking out RNs who were responsive to the needs of the sexual assault victim, establishing treatment protocols to ease the impact on the victims, and providing training to allow the SANE to treat the victim, document the victim's conditions, and collect and preserve evidence recovered from the victim.

The SANE program eventually led to the development of forensic nursing, where nurses specialize in fields to assist the justice system. Forensic nursing includes sexual assault specialists, nurses who investigate malpractice, death investigators, specialists in psychiatric and psychological nursing, and nurses who function as either police or private investigators. "SANEs are forensic nurses; however, not all forensic nurses are trained to be SANEs" [7]. Despite that fact, the evolution started by SANE programs has led to highly increased capabilities within the nursing profession, and has helped ensure that the medical fields are much more understanding of the needs of the justice system, and cognizant of their role when interfacing with the overall legal system.

However, despite the growth of SANE and forensic nurses in general, they are still a very small component of the nursing system. Out of over 7,000 American hospitals, only a few hundred have SANE on staff; some areas depend upon a regionalized SANE network to provide services, while in other areas it is not a formal service. Thus, it falls to the general nursing community, especially the emergency nurses, to conduct the majority of sexual assault examinations.

A first step is to develop a good working relationship between the emergency department and the law enforcement agencies which use it. In larger locales there will be investigators dedicated to sex crimes, or even more specialized, distinguishing among adult sex crimes, sexual child abuse, and even crimes against the elderly. Many agencies only have general assignment investigators, who handle all crimes from theft through murder. Numerically, the majority of agencies do not have investigators, and instead assign investigative activity to a senior patrol officer or even to the officer initially taking the call. Some of these agencies may have relationships with larger agencies (a sheriff's office or state police) that will handle felony investigations; however, these aiding agencies may not be immediate responders, and the basic collection and documentation may still fall to the local agency.

No matter the size of the community, ERs and police often form close relationships. ERs are one of the few twenty four hour spots where the cop can find a cup of coffee, understanding conversation, and a safe haven from the public. Being as the police and the ER share many of the same problems of

society, they often find each other an open audience. As emergency nurses learn their local law officers, they can begin to seek out information that may assist them in providing treatment, especially in sex crimes. Learning the type of sexual assault evidence collection kits in use, any specific evidence handling needs, legal constraints imposed on investigations, etc. will permit the nurse to better serve the community and the patient.

It is important that emergency providers understand any constraints placed on victim interview by the courts. During the late 1980s, when the extent of sexual child abuse was being recognized, many judges placed constraints on the numbers of interviews a child could be subjected to attempt to protect the child. Many judges did not differentiate between interviews by the criminal justice system and others; thus an interview in the ER that went into details of the incident counted against the total number of questionings permitted. Today, with the presence of SANE practitioners, victim advocates, and better trained sex crime investigators, most involved understand and respect the constraints. However, it is best to understand whether there are any local constraints on interview and, if there are, carefully tailor one's interview to the medical needs of the victim.

As this section deals with physical evidence, no distinction will be made between suspect and victim processing. Although the medical practitioner will more often deal with the victim, circumstances may result in the suspect being examined medically. The evidence collection in both cases will be the same. For example, a female victim forced to perform oral sex on a male perpetrator may deposit saliva bearing her DNA and lipstick on the suspect's penis, both of which will need to be documented and collected. Conversely, a female perpetrator having sex illicit oral sex with a male, usually an adult offender on an underage victim, may deposit similar evidence which must be documented and collected.

An important first step is to understand the sexual assault evidence collection kit or kits in use locally. In many jurisdictions, a uniform kit is used among all agencies served by a political agency; possibly a regional crime laboratory, a prosecutor's office, or even at a statewide level. In other areas, each agency provides its own kits, or even the medical facility provides the kits. The SANE trainer, nursing educator, or emergency department staff should maintain a complete kit for training, permitting both training of new personnel and reference or review for existing personnel. Different kits are composed slightly differently; recognizing their components make the job easier for the nurse conducting the examination.

The first step in using any kit is to ensure that it is sealed when received. The failure of a kit to be sealed exposes it to later legal criticism for contamination. Thus, an unsealed kit should be rejected. Similarly, ensure that any blood tubes have current expiration dates. Although the date is only a

warranty of the vacuum in the tube, an out of date tube potentially gives the defense an unnecessary avenue to cast doubt on the examination.

Starting with the container, most components of a kit should be initialed, signed, time and date marked, or otherwise marked. An important reason for this is that you may not see this kit until a trial that may be 1 or 2 years in the future, and your primary manner of identifying the kit and every component will be your markings. Paperwork contained in the kit may need to be completed, and instructions should be followed as closely as practical, with any deviations documented and defensible. Often, it is best to do the writing portion of the examination before the hands on exam, limiting one aspect of contamination of evidence as well as avoiding contaminating writing instruments, etc.

The next step should be to prepare the examination area. Many kits include a disposable paper sheet. This should be spread on the floor, providing a work area that, upon culmination of the examination, may be folded and included as evidence. Should the victim need to be prone for the examination, ensure the table is covered with a clean piece of medical examination paper, which will also be collected upon completion of the examination as evidence.

Throughout the examination, a quality camera should be available to document any injuries or visible evidence. This would include any visible debris in the head or pubic hair, obvious injuries, bite marks, visible stains, damage to clothing, especially as worn prior to disrobing, etc. In the days of film, the common catch phrase among crime scene investigators was that film was cheap; today, with the dramatic rise of digital photography, the cost of photography has become negligible.

The first actual step in the forensic examination will usually be the collection of the clothing. First, ensure that an examination gown is available for the patient, and that a change of clothing is there, as the clothing removed will be collected as evidence. Each item of clothing should be individually removed; if possible, each should then be bagged separately, although some kits only provide for mass collection of the clothing. Special care should be taken to ensure that any hairs, fibers, or stains are not lost during the disrobing process. In addition, special care must be taken in regards to removal of delicate clothing, especially undergarments, as described in regards to the activity of paramedics in the field. Damage from the attack to these items may speak with great strength at a later time.

Often the next step will be to conduct hair examinations, both pubic and head. First, the specific area will be combed, using a clean, new comb, combing any loose materials into an envelope or collection sheet which will then be folded and sealed as evidence. The intent is to collect any loose materials trapped in the hair – hairs, fibers, dried body fluids, etc. If using a collection sheet, the contents should be secured by

using a druggist's fold to completely contain any evidence recovered.

After combing the area, samples should be taken of the patient's hair by plucking. The number of hairs plucked is not of importance; rather their collection from a varied location is. The appropriate tools are gloved fingers; use of hemostats, tweezers, or similar tools reduce your grasp of the hair and may result in crushed shafts. One or two hairs should each be plucked from the front, back, right, left, and center of the head and placed into an envelope or collection sheet, and one or two hairs plucked from each of the four quadrants of the pubic region. It may be less traumatic for a victim to pluck their own hair, at your direction. If a paper sheet is used, again, it should be secured in a druggist's fold.

The body should be examined for the presence of stains, especially from body fluids. This may be accomplished by first a visual examination in normal lighting, followed by a scan of the body using an ultraviolet or forensic light source. Depending on the lighting unit and nature of the material, the stain may fluoresce, be visible as a colored patch, or appear black. No matter how it appears, it should be photographed and then collected. The traditional, pre-DNA collection media was a swab moistened with sterile saline; in this day of DNA sterile, distilled water can be substituted, and indeed is the solvent of choice for the crime scene investigator.

With the advances in DNA, the need to collect blood samples for reference standards has been replaced by the collection of buccal swabs. This entails using a sterile swab to swab the inside of the cheek. This should be energetic, but not so much that it causes injury. The intent is to collect nucleated epithelial cells from the interior of the cheek. The swab should then be allowed to dry or be placed in a suitable container which allows for air-drying. Most often, buccal swabs are collected using commercial kits designed for this specific purpose.

One sometimes overlooked aspect of evidence collection is that of sexually transmitted diseases. DNA has been used to associate HIV and herpes between suspect and victim; while not the higher statistical results which approach individuality as found in body fluid analysis, the results are still statistically relevant, permitting a close association to be drawn between the suspect and victim. Thus, samples taken medically for STD diagnosis may be then submitted to the forensic laboratory for DNA analysis, again tying the suspect and the victim together in the case.

The most invasive aspects of the examination, and those which require a medical professional to conduct them, are the vaginal, oral, and anal examinations and sampling. During these examinations, the professional may need to swab the interiors of the orifices to attempt to collect body fluids deposited there during the assault. The examiner must remain alert to the presence of other evidence, such as hairs or fibers that have been transferred to these locations, and

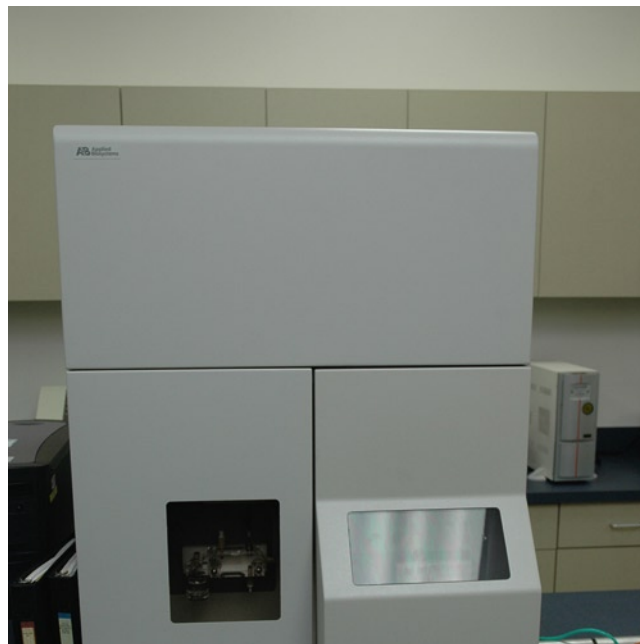


Fig. 3.7 Genetic analyzer for developing DNA profiles

which should be carefully collected. Injuries or other signs of abusive activity should be noted and photographed if possible.

Bitemarks are a common occurrence in sexual assaults, as well as other violent offenses. Bitemarks may be indicative of the violent manner of the assault, a showing of the offender's dominance over the victim, and may also be found on the suspect, as a result of defensive action by the victim. They should be carefully documented whenever encountered. Bitemarks as a form of evidence both help tell the story of what happened, and aid in the identification of individuals through DNA deposition and comparison of dentition.

The primary form of documentation will be photographically. A quality camera, capable of close-up photography, should be used. Photographs should be in color, to permit viewing of the color of the wound, enabling the viewer to better recognize the severity of the bite. Depending on the lighting, auxiliary flash may be needed. Photographs should be taken both with and without scale, to ensure that forensic needs and possibly differing legal needs are met. The preferred scale is the ABFO#2, an "L" shaped, metric marked scale which includes gray sections for exposure correction and a circle with cross hair to help prevent distortion from nonperpendicular shots. This scale was developed by the American Board of Forensic Odontologists and has become a very common tool of the criminal investigator.

Once photographed, the bite should be swabbed with either sterile saline or distilled water, to attempt to collect any transferred body fluids. Once this is done, if medically prudent, forensic silicone may be used to obtain a cast of

the injury. This will provide the forensic odontologist with a three-dimensional view of the injury to use in comparisons, complementing the two-dimensional photographs. Normally, this will fall to a crime scene investigator whose toolbox will include any of several silicone impressing tools and compounds.

Sexual assaults are perhaps the area of greatest involvement for the medical practitioner in criminal investigations. Cooperation between detectives, crime scene investigators, emergency medical responders, nurses – especially SANE-trained forensic nurses, and trained physicians helps ensure that the evidence needed to incarcerate an offender is recovered and that the victim's dignity and needs are met.

3.3.5 Trace Evidence

The term trace evidence can have a wide variety of meaning. It is based upon Dr. Locard's original premise that every contact exchanges material. However, as specialization has entered into the criminalistic field, evidence such as serological and toxicological materials have become separate areas. However, other materials are lumped together as trace evidence.

Very common are hair and fiber evidence. Hair refers to hair from any mammalian source, most commonly human, but other animal hairs have also had evidential value. From birth, mammals are constantly growing, shedding, and replacing hair. Hair may fall out naturally (shedding) or be lost through force.

Traditionally, hair examination was a microscopic examination. Under the scope, the criminalist would examine the evidence, noting color, thickness, shape, and other attributes, and comparing evidential hair to standards obtained from known sources. It was not conclusive, but rather reported as a verbal probability. However, the advances in DNA are being applied to hair examination, with the attendant higher accuracy of results.

Hair is also examined as to how it was shed. Microscopic examination may permit the criminalist to determine if a hair was forcibly removed (pulled or torn), or was cut, either of which findings may have specific value to the case at hand. Often this has relevance to showing that an incident was violent.

Fibers are everywhere, yet rarely considered. Note this definition, from an FBI publication:

A fiber is the smallest unit of a textile material that has a length many times greater than its diameter. Fibers can occur naturally as plant and animal fibers, but they can also be man-made. A fiber can be spun with other fibers to form a yarn that can be woven or knitted to form a fabric. The type and length of fiber used, the type of spinning method, and the type of fabric construction all affect the transfer of fibers and the significance of fiber associations. This becomes very important when there is a



Fig. 3.8 Comparison microscopes are also used in the comparison of know/standard hair and fibers with those recovered on a scene

possibility of fiber transfer between a suspect and a victim during the commission of a crime [8].

Fibers are encountered continuously. Clothing, carpeting, rope, strapping, and so many other items are manufactured from fibers.

Fibers are constantly being deposited and exchanged. Friction is a major tool in this – walking, sitting, and brushing against others all generate friction, which results in loosened fibers being transferred between surfaces. Others are left as the result of cutting or tearing of fabric or other fibrous materials, with fibers of various sizes then being freed from the source and being deposited on the passing surface.

Investigators in the field may recover fibers and secure them for laboratory study. Surfaces may be vacuumed or sampled using adhesive tapes, with the collected materials then submitted for further laboratory exam. On many occasions, the investigator will collect an item (bedding, upholstery covers, etc.) and submit it intact to the laboratory for further examination. The criminalist in the laboratory is often faced with both locating and identifying the fibers. Location is effected by several methods. Visually, the examiner will inspect the item under white light or under a forensic light source. Tape collection is often used to sample a surface and determine what loose materials, especially fibers, may adhere.

The criminalist will then conduct a variety of examinations to identify the sample. These include microscopic examinations, examining the item for color, physical make-up, and measurements, and chemical analyses to determine the material's make-up (synthetic, natural, a composite, etc.). Further microscopic examination may permit the analyst to determine if the evidence may have originated from a specific source. Microscopic examination may also permit the criminalist to determine if the evidence was subjected to stress such as tearing, and may even result in a fracture match of a potential source to the evidence.

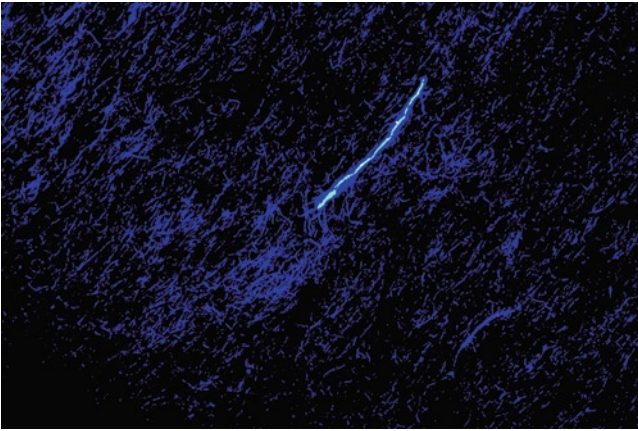


Fig. 3.9 Fiber located during search using ultraviolet light source

Glass is another form of trace evidence that is commonly encountered. Glass takes many forms. There is plain glass, such as common window glass. Tempered glass is used to ensure a glass that breaks into small pieces to lessen its injury potential. Laminated safety glass, such as automotive windshields, sandwiches a sheet of plastic material between two sheets of window glass, to again make a safer product. Security glass, that often seen in door frames with an inner matrix of steel screen, is designed to prevent or discourage illegal entry.

In addition, glass may possess chemical factors. Modern glass may contain other components such as polymers to strengthen it. Tints may be applied to glass for sun protection, such as automotive glass, or for heavier color, such as brown glass used to package some light-sensitive chemicals, or used for esthetic value in packaging.

The optical qualities of recovered glass are also studied to help establish source. Using appropriate equipment, a criminalist may determine the refractive value of the glass, and determine if it is the same as a suspected source.

Glass may also provide other information. Careful analysis of breakage may tell the examiner from which side force was applied to break the glass. Projectile damage may often be studied to determine direction of the shot. Further, multiple projectiles will often form a pattern of damage that will permit the examiner to determine a chronological order to the shots.

Paint is another area of trace evidence that is frequently encountered. Most often this is in traffic-related investigations, although it may be found in a wide variety of cases. The chemical make-up of paint may be very specific – consider the custom paint blended for house painting, or the use of paint for automotive work. Layers of paint, especially as found in automotive work, may go far toward individualization of a paint chip to a known source. Also, a chip may be studied against a possible source to establish a fracture match.

Greater emphasis is now given to soil and vegetative materials than had been formerly. Very often, soil varies considerably over a relatively short distance. In Florida, along the east (Atlantic) coast there is coarser, somewhat tan-colored sand. Moving inland, one encounters a variety of topsoil, some imported, some a more loamy mixture of topsoil and local sand. As the Everglades region and flood plain of Lake Okeechobee are crossed, a nutrient-rich muck is encountered. Continuing west, one again crosses a loamy soil, especially in the pasture and grove laden central ridge. The west (Gulf) coast of Florida then has finer, whiter sand than the east coast.

Vegetation will similarly vary. Again, to use Florida, along the coast is found vegetation that is adapted to grow along sand dunes, such as sea oats, sea grapes, and palms, plus marsh growth such as mangroves. Moving inland through the urban and suburban neighborhoods will be found a mixture of several grass types, palms, scrubby pines, and ornamentals. Further inland, reaching the savannahs and hammocks, one will find long grasses, palmetto, live oaks, and pines.

With either soils or vegetation, an appropriate forensic scientist will study the materials recovered in a case and determine if they are natural to the location involved. It would not be unusual to recover birch in New England; but its presence in south Florida would be highly unusual. Combined with the facts of the case, such recoveries may yield valuable relationships for an investigation.

Almost any material may be classed as trace evidence. However, it must be located and preserved to have value. Activity at a scene is such that much may be destroyed, from an evidential aspect, unless those on scene are aware of potential evidence. Often, this need be nothing more than awareness and an avoidance of reckless handling. For those whose interest is in fire suppression or rescue, life safety is always paramount. However, being aware of the potential of trace evidence, not unnecessarily disturbing a scene, and possibly setting aside or otherwise protecting obvious items of trace (a hair here, a fiber there, a chip of glass or paint) may be all it takes to preserve evidence of potential significance for case investigators.

Unknown materials compose a wide ranging group within trace evidence. Dependent on the situation, an unknown material may be a weapon, an indicator of an individual at the scene, or be used to track an individual's travels. They also comprise more of a problem for the forensic scientist, as few laboratories are prepared to analyze actual unknown materials.

The most common targets of chemical analysis are drugs, especially drugs of abuse. From natural materials, such as marijuana and psilocybin, to drugs manufactured from natural ingredients such as heroin and cocaine, to synthetic materials such as methamphetamine and methadone, drug

Fig. 3.10 GCMS (gas chromatograph mass spectrometer) used for drug analysis



analyses comprise the single greatest use of crime laboratory services. Although most times this relates to drugs of abuse, it may also encompass drugs used either intentionally or accidentally in overdoses.

Closely related would be toxic materials, which may be encountered in accidental, intentional, and intentional self-administered incidents. These may vary widely, including household or industrial chemicals, heavy metals, toxic plants and animals, and any other item that may have a poisonous effect on humans or domesticated animals.

Along with their value to the criminal investigation, these materials may be of significant interest to emergency medical personnel. Depending on circumstances, it may be important for responders to collect pills, powders, or suspicious materials of any type for use by the medical laboratory in assisting in diagnosing a patient's condition.

Materials may be collected intact, for example, drugs contained in pharmacy vials or other containers. Suspicious liquids found in cups or other open containers should be sampled in a sealable container. Other times it may behoove the responder to use an envelope or similar container to collect samples for the hospital to further analyze. If the responder does collect material on the scene, they should ensure that investigators know about their actions, both to properly document the scene and to share information if it becomes necessary.

Other chemical analyses are conducted on evidence. Incendiary and explosive evidence is examined chemically to determine its make up, and at times even to establish a source for the specific chemical. Although relatively rare, trace materials may be examined chemically and microscopically to identify them, and even to qualify them to a source,



Fig. 3.11 Gas chromatograph used in determination of blood alcohol content

e.g., differentiating one ink from another. These analyses may require the investigators to work with unusual laboratory resources, such as some of the National Labs, which have unique analytic capabilities, or with a research or manufacturers laboratory that understand the unique properties of the material in question.

There are occasions where such evidence must be collected to ensure its preservation. Perhaps a crew treating a patient, either in the field or in the ER, finds potential trace. Or responders, examining their shoes after working a scene, discover hairs or fibers clinging to the soles. In these circumstances, the materials should be carefully collected to ensure none is lost, and then secured in either a clean, new envelope or using the traditional druggist fold method of enclosing such evidence in a sheet of paper.

Fig. 3.12 Individual criminalist workstation in chemistry section of crime laboratory



The druggist fold is a technique that originated in the pharmacy field. Place the sample in the center of a sheet of new, clean paper. Fold the paper in thirds horizontally and vertically, and then secure with tape. This ensures that any item in the center is trapped and will not slip out of the folded paper. Sealed and marked, it should then be given to the appropriate investigator for case use.

3.3.6 Pattern Evidence

Some evidence is identified to a source by studying patterns which are natural to the item or the result of wear and accidental damage to the item. They are based upon the concept of uniqueness that no two items will ever precisely share the same attributes.

The most commonly encountered form of pattern evidence is the fingerprint. The human body forms special skin on the hands and feet, known as friction ridge skin, which aids us in walking and handling items. These ridges form during fetal gestation, have already formed their permanent appearance before birth, and will remain unchanged unless there is scarring until postmortem decomposition destroys the skin. These ridges do not form as smooth lines, but rather will fork, end, and form dot-like items in an almost infinite number of relationships, thus providing their value for personal identification. In addition, the summits of these ridges bear sweat pores through which the body exudes a combination of chemicals. These chemicals are deposited by touch in the form of the ridge details; by a variety of techniques, these fingerprints may be visualized and then used to identify the individual responsible for touching the item.

The original and still most common method of latent fingerprint development is by the use of powder. The powder adheres to the oily material forming the print, making it visible. It may then be photographed and lifted using an adhesive tape. Superglue was discovered to have an affinity for the chemicals in the print; surfaces are now exposed to the fumes generated by superglue, the fumes then attract to and deposit on the latent, allowing it to be further visualized by powders or chemicals.

Porous materials, such as paper, present greater challenges to locating prints. A variety of chemicals are used to react with the materials that make up the fingerprint, which is then visualized through a color reaction. These are then documented by photography.

Lighting is used in the search and visualization of fingerprints. White light, such as from a flashlight, is used at an oblique angle to search for latents on some surfaces. In conjunction with superglue, powders, and chemicals, a variety of light spectrum collectively referred to as forensic light sources are used to visualize the prints, which are then recorded photographically.

Some fingerprints are transferred directly, leaving plastic impressions of the print. These include transfers in another medium, such as in blood or paint. They also occur from touching a soft material, such as putty, cheese, or chocolate, with an impression of the fingerprint then being embedded to be photographed for documentation.

Whether a plastic impression or a transfer of body chemicals, fingerprints are a fragile form of evidence, easily destroyed by many actions. While the wearing of gloves protects against transferring one's own fingerprints to a surface, they do not protect existing prints from damage or destruction. Plastic

Fig. 3.13 Basic fingerprint patterns

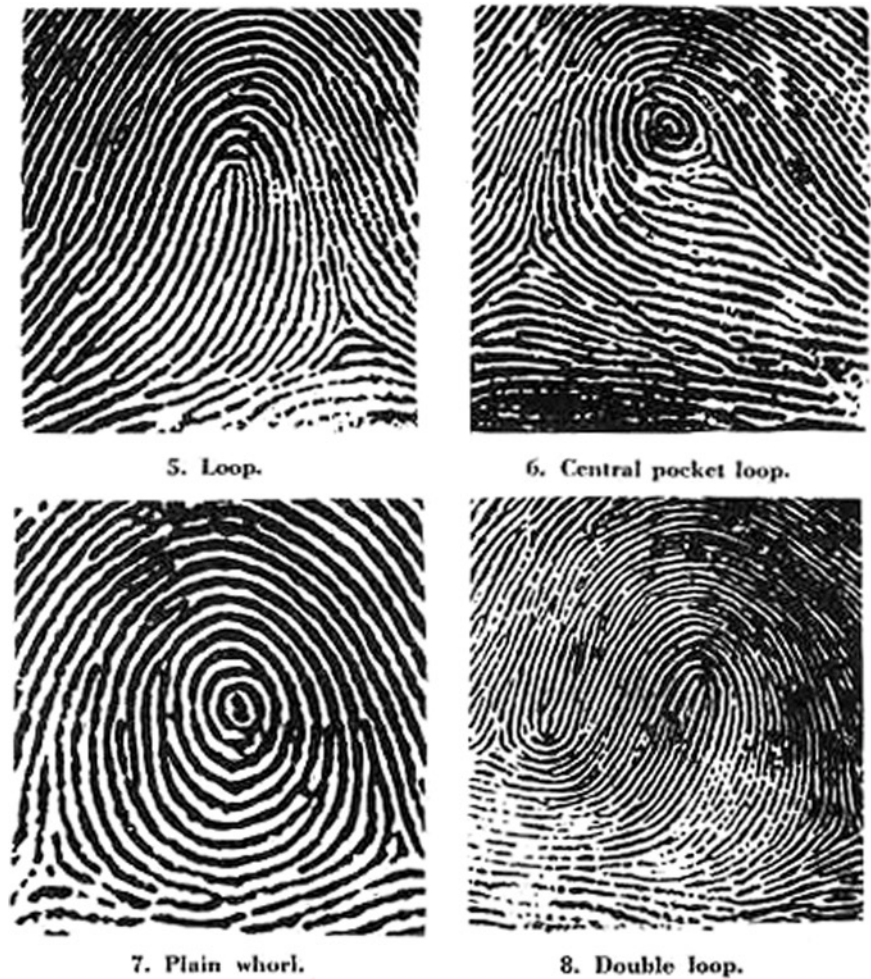


Fig. 3.14 Latent prints enhanced using brush and powder, lifted with tape, and placed onto card for storage

prints and prints appearing on highly glossy surfaces may be visible to the eye; for others it is only through careful activity on a scene that they may be protected for later physical discovery. Especially for the emergency medical responder, life

safety takes precedence over evidence. However, responders can attempt to limit activity, especially unnecessary activity, to lessen damage to these valuable pieces of evidence.

Shoe and tire impressions are also very commonly encountered pattern impressions. These items, as manufactured, bear class characteristics, that is, each shoe or tire resembles many others of the same type and size. However, wear quickly acts to individualize the appearance of the impression. Thus, a size 10 D running shoe of a specific manufacturer and model will initially share class characteristics with thousands of similar shoes. But over time, as the user's body causes the shoe to show wear patterns unique to the wearer's body type and gait and as encounters with various obstacles cause nicks, cuts, etc. to the sole, the impression becomes unique to that shoe.

These impressions may be made in a variety of manners. Most commonly, one thinks of a shoe or tire leaving its image behind in soft soil, sand, or similar medium, where it will be photographed and possibly documented by a casting technique. However, either may leave impressions in transferred dust on a variety of surfaces, where the dust may be recovered



Fig. 3.15 A shoe impression prior to being cast

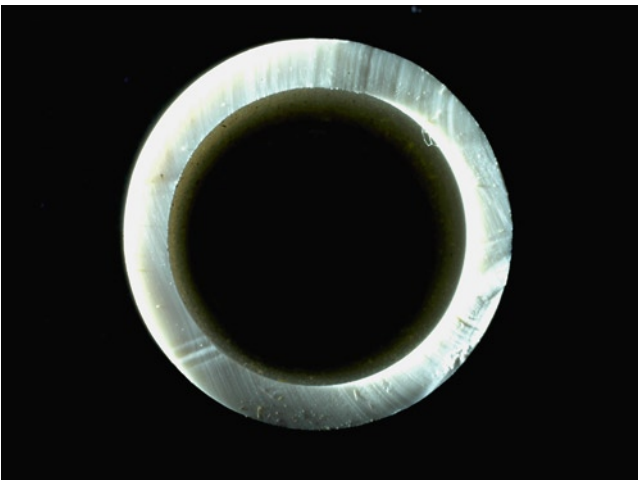


Fig. 3.16 Toolmarks on edge of piece of PVC cut with PVC cutters

using an electrostatic technique, lifting it with a film material, and then preserved by photography. Shoes or tires may transfer detail to a hard surface as a latent impression in otherwise invisible oil; these may be made visible with powder, as with fingerprints, and photographed and lifted.

As stated previously, emergency responders have other immediate considerations than awareness of specific evidence. However, our response methods may help preserve such impressions. Parking on paved areas, rather than unpaved surfaces especially soft sand or soil, lessens the potential of destroying impressions. By minimizing the routes used while working a scene responders can lessen the probability of destroying impressions. If practical, responders may mark shoe or tire impressions using barrier tape, traffic cones, overturned cardboard boxes, or other items that will both mark and protect the impression for investigators.

Toolmarks refer to minute marks, which are formed on tools of various types during manufacture, which are

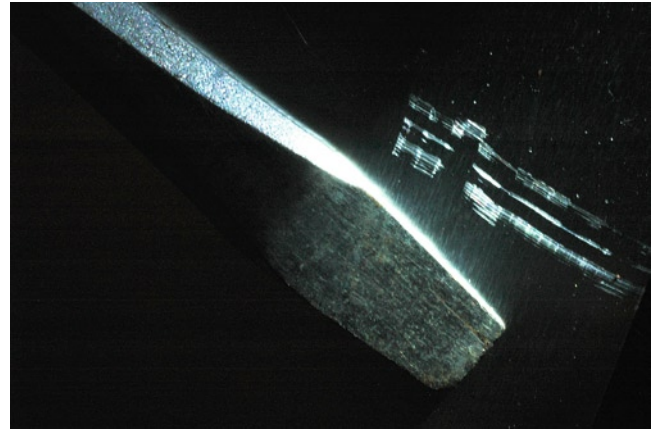


Fig. 3.17 Striated toolmark on sheet of aluminum and screwdriver tip responsible for it

enhanced during various types of manufacture, which are enhanced during use by accidental damage, and which will be transferred as images to materials handled by the tool. Simply put, hard marks soft – a plumber using a pair of water pump pliers on a piece of copper pipe will leave apparent scratches on the pipe, which under magnification can be identified to the specific tool which made them.

While the term toolmark is used for this field, it is really inadequate to describe the potential sources of these transferred marks. Almost any tool, in the course of its use, may leave behind these marks. Any other hard item, used against a softer surface, will also transfer marks. A piece of galvanized pipe, used to batter open a door, will transfer impressions to the door which can later be used to identify it. Size is also not of consequence; while it is obvious a hammer or wrench will leave identifiable marks, so will a pair of wire cutters on a small diameter piece of wire, or the tooth from a large backhoe that impacts the fascia of an automated teller machine during a burglary.

Common locations of toolmarks are on locks, doors, cut wire, and other items that have been manipulated by tools. But there are other uses for toolmark examinations. In a number of cases, a knife or other weapon has been matched to the damage to the sternum or a bone by a toolmark examiner. Film has been identified to a camera by the image of toolmarks documented on the film capturing the inner cutout of the camera body.

Indeed, the single most common form of toolmark identification is better known as firearms identification. During the functioning of a firearm, a number of interactions transfer marks from the firearm to other surfaces. As a cartridge is loaded into a pump, lever action, bolt action, semiautomatic or automatic firearm, the cartridge will receive marks from the firearm magazine. During firing, the projectile traveling down the barrel will be imprinted with toolmarks from the interior of the barrel. Also during the firing, the

cartridge case will set back onto the breechface and firing pin, leaving their images. As the case is removed from the chamber, the extractor will mark the rim of the cartridge, while the ejector will imprint its image on the case head as it knocks it from the receiver. Finally, some firearms will see the case impact the mouth of the receiver while being ejected, leaving yet another mark on the soft metal of the cartridge case.

Very often fire suppression and rescue crews must use forcible entry to conduct their work. It is important that these crews take note of conditions when they arrive on the scene – was there existing damage indicative of previous forced entry? If there are signs of prior forced entry, an attempt should be made to not destroy them during their professional entry. If there are no signs of forced entry, but crews must use force to enter, this should also be recorded to help investigators recognize that damage is part of the response, not a prior condition.

Firearms evidence was considered earlier. But it should be restated, responders should attempt to watch where they drive and walk, to avoid driving or stepping on and damaging casings and bullets. During patient treatment personnel should try to be aware of loose bullets, cartridge cases, etc. on the victim which may be lost if not collected for later transfer to investigators. Unfortunately, urban incidents are often littered with casings and bullets, putting a greater burden on emergency responders.

Fracture match evidence consists of a wide variety of items, any item that may be torn or broken. Most common are torn papers and tape, but materials such as sticks, small pieces of wood, and other items easily broken also lend themselves to fracture matching. Here, the criminalist will compare the broken edges or torn edges of the two items, one the questioned from the scene, the second from the known source. For example, tape is often encountered, used to bind victims in cases, used for securing drug loads in trafficking cases, or used for sealing of other materials. If a roll of tape is recovered, the torn end of the roll tape may be compared against the torn ends of the tape from the evidence. A physical match of the two is highly indicative of the one being the source for the other.

Any recovered items that have potential fracture match value should be carefully handled. First, handling should be minimized, to avoid possibly obliterating or damaging the fracture pattern. Second, potential fracture match evidence should never be brought into close proximity to its suspect source. This should be left to the criminalist, who will extensively document the items, and who will conduct much of the examination under magnification to locate minute points of similarity. To bring the items into close proximity opens the question of the two items having contacted and artificially exchanged similarities, and thus ruin the credibility of the evidence.



Fig. 3.18 Torn piece of paper tape showing fracture match

3.4 Summary

Evidence is everywhere. It becomes of value to investigators when it becomes connected to a criminal act or suspicious circumstance. Even when not of value to criminal investigators, it may have value to others in the emergency response field, whether medical personnel treating a patient, regulatory personnel examining a noncriminal incident, or administrators pursuing an internal investigation.

Because evidence is ubiquitous, much will be overlooked or destroyed. However, alert responders can protect or preserve evidence. While the protection and preservation of evidence must never be allowed to take precedence over life safety, to the extent that responders maintain awareness will help ensure that it is safeguarded to make its statement in the investigation. As ultimately all involved want a successful investigation, be it criminal, administrative, regulatory, or medical, evidence should be sought after and preserved for proper collection and interpretation.

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On June 21, 1995, President William Clinton issued PDD-39, US Policy on Counterterrorism. Since then, the nature of the emergency service provider has been altered forever.

The nature of the public safety community had changed over the preceding 25 years. Where an ambulance in 1970 was basically a station wagon manned by a driver and usually a “first-aider” who merely rushed the patient to an emergency room, EMS had evolved to a system of BLS (EMTs) and ALS (paramedics) who were highly capable of conducting many lifesaving procedures in the field, thus improving the prognosis of patients. In 1970, fire departments sprayed water on fires. By the 1990s they had significantly upgraded their fire ground tactics. They had also become established as the primary emergency providers of hazardous materials mitigation services, heavy rescue capabilities, and urban search and rescue skills to be employed in major disasters.

Prior to PDD-39, few American jurisdictions looked seriously at the needs of response to a terrorist incident. Some had, improving their intelligence gathering, bomb disposal teams, and hazardous materials services. Most had not looked to this emerging potential threat, nor had they considered the need for their various public safety and related services to interact on such an incident.

Certainly events had occurred which gave thought to the evolution. The devastation suffered by southern Miami-Dade County in 1992s Hurricane Andrew focused attention on the potential for major urban disaster and its response. The 1993 bombing of New York City’s World Trade Center illustrated the potential for terroristic attacks against the USA. However, it was the 1995 bombing of the Murrah Federal Building in Oklahoma City that especially prompted the president to make a national commitment to revamping the nation’s procedures and preparations for

terrorism, especially massive acts of terrorism, within the nation’s borders.

4.1 Interservice Cooperation

Because the new policy looked beyond bombings and firearms assaults to include chemical, biological, and nuclear/radiological threats, a much wider variety of public safety and indeed public service resources were incorporated into the future planning. Law enforcement resources would be tightly interfaced with fire-rescue resources such as hazardous materials, heavy rescue, and search and rescue, the medical community, especially the public health component, would become intimately involved, and public works providers would be looked upon as essential members in safeguarding the community as well as supporting responses to incidents.

A significant obstacle has been to force fit these various groups to co-operate on the scene, and to properly coordinate efforts. The answer was found in a tool of the fire service. The Incident Command System (ICS) was developed in California in the 1960s and 1970s, when the clash of urbanization and forest fires resulted in urban interface wild fires. Previously the bailiwick of specialized force teams, the wild-fires in rapidly expanding residential areas brought traditional fire services into the mix. The demands also required much greater outside aid, incorporating many mutual aid fire agencies in support of the target of the fire. This created serious problems – chains of command, responsibility and decision-making, logistical concerns, communication issues due both to noncompatibility issues and significant difference in vocabularies, as well as ensuring local knowledge and information was rapidly shared among responders from hundreds or thousands of miles distant.

Concerned fire service leaders looked at the problem and found answers in the model of the military, especially the military of World War II. An outcome of that war was a tremendous fighting force of millions of men, organized by a variety of major specialties, each of which is further organized into a variety of units by function and size. However, the military of the Second World War learned to closely coordinate the various military branches as well as a variety of units and specialties. Thus, dissimilar operations, such as amphibious assaults, air – ground support, tank supported infantry, became a major factor in victory.

Drawing upon these lessons, the fire service developed ICS. Within it, it defines who is in command, establishes a variety of administrative roles designed to support the operational function, and acts simplify the sometimes conflicting terminology in use by a wide variety of fire agencies.

As the utility of ICS was recognized, it spread from the wildfires in California first nationally among forest fire responders, and then was adapted and adopted by the fire rescue service in general. Whether a major multi-agency response or routine fire/rescue call, ICS provided rescue providers a framework to maintain command-and-control on any incident.

Often closely affiliated with the fire service, emergency management soon adopted ICS in support of its operations. This became especially true in the functioning of emergency operations centers, where professionals from a wide variety of fields and agencies became a knowledge pool and inter-communication point of contact during events.

Among the most important aspects of ICS are to delineate chain of command and span of command. A clear chain of command eliminates confusion as to who provides direction. Under ICS any one position only answers one superior. The incident commander issues direction through a formally established chain, with each of his subordinates responsible to then direct their immediate subordinates. This also prevents confusion when an individual or unit is temporarily assigned to a different element; the line personnel know they answer to one superior, and that superior answers to just one individual. Thus if in an incident a SWAT team is assigned to a fire rescue task force to provide security, the SWAT leader knows he answers to the task force leader just as each fire rescue team also answers to that leader.

Span of control is another important factor. An individual can only effectively oversee a set number of subordinates, usually no more than seven. Sometimes it is self-limiting – a field laboratory may only consist of a lead chemist and two chemists/technicians. When organizing untrained personnel, the superior is taxed greater than when overseeing training professionals. Thus, an officer leading a crew of hastily assembled civilian searchers may only have a team of 7,

where professional search and rescue team may field upward of 12 professionals under a lead officer. This tailoring leads to greater efficiency, and functional safety.

Following 9/11 and the reorganization of the federal government and establishment of the Department of Homeland Security (DHS), formal adoption of ICS was undertaken. Recognizing the confusion during much of the World Trade Center response, FEMA, itself already a proponent of ICS principles, at the direction of President Bush, developed the National Incident Management System (NIMS). Based upon ICS principles, NIMS is modified to better suit the multifaceted nature of organizations responding to a significant incident.

NIMS is federally mandated for any agencies or organizations participating in a federal incident. However, it is seeing adoption by many as a standard of organization. For example, many in the law enforcement community, which had not been active in ICS, have now commented that much of the organization had been in use informally, on most major police responses. The formal adoption of NIMS has just simplified and provided a more uniform response.

Training in NIMS is available from DHS. The four primary courses, ICS 100, 200, 700, and 800, are available online from the FEMA training page. Other programs, such as ICS 300 and 400, which are required for persons in staff and command positions, must be taken in classroom settings, but may often be found offered locally through fire service or emergency management organizations.

The principles of ICS are being adopted on an ever widening plane. Most government agencies have adopted it to maintain familiarity and provide internal uniformity in their response procedures. Many nonprofits that frequently support governmental responses have also adopted ICS, especially as they also come under the federal mandate when supporting such missions. A growing number of private and corporate businesses are also incorporating ICS principles. Obviously, when supporting a federally mandated mission, they must. However, they also see the utility of organizing many of their functions under this system, which was first proven in the stressed confusion of battle and then further developed coordinating efforts on the fire line.

Emergency operations centers (EOCs) are an emergency management function designed to provide a centralized command and communications center during any emergency or planned operation. Command varies by locality and state, including a higher level political command, e.g., municipal, county, or state leaders who need to maintain contact with an incident for strategic or tactical oversight. Another significant attribute of an EOC is a survivable fixed command location. An important aspect of an EOC is to facilitate communication among the many agencies and fields which may be necessary to support an operation. Thus,

the concept of emergency support functions (ESFs) was established.

Fifteen fields have been identified as composing the ESFs. At a fully functioning EOC, each of these slots will be staffed with one or more professionals, who serve as points of contact to both support needs generated in the field and to provide triage and routing of information requests from the public sector. For example, during a flood situation, a report of a washed out road would be routed to ESF 3, public works, which would then communicate the information directly to the appropriate public works agency for response and mitigation efforts. In some situations, one ESF may be the crux of the operation and in fact designated as the incident commander for that incident, and other ESFs will function to support it. For example, during massive wildfires, ESF 4, firefighting, is the primary aspect of operations. Other ESFs will act to provide adequate support, e.g., ESF 6, mass care, will coordinate evacuation of population, while ESF 13, public safety, will provide traffic control, route control, and convoy escort.

An individual sitting at an ESF desk does not merely represent an agency, but generally the entire field. Thus ESF 12, energy, may be staffed one shift by a representative from a municipal power service, another shift by representative from a private regional power company, and yet another shift by an individual from a local natural gas transmission company. Similarly, ESF 13, public safety, may one shift be staffed by a municipal police officer, another by county deputy sheriff, and yet another by a state law enforcement officer. Obviously, the level of EOC will dictate the available pool – a municipality may be responsible for most governmental roles, a County may have many embedded municipalities to rotate through, a State EOC hundreds of municipal, county, and state subdivisions to draw upon for manning.

In a significant event, many agencies may be functioning under a unified command using ICS and staffing an EOC, plus may be incorporated into the larger umbrella. For example, in a hurricane, many municipalities may activate their EOCs. Counties anticipating being affected will activate EOCs, while at the state level an EOC will activate to ensure communication, cooperation, and support. Many private organizations may activate in-house EOC operations, whether as response support (Red Cross), continuation of service (hospitals, regional power companies, and other utilities), or protection and preservation of facilities (school systems, major college facilities). At the federal level an appropriate center will come online, coordinating with state/local needs, maintaining federal response capabilities, and upon legal authority from the president, coordinating appropriate federal response. It is valuable to recognize that this is like watching a snake – the head (local governments and local/regional firms) will be moving from the outset. The middle

of the snake, the state, will not immediately move, until it knows where its head is moving and how it needs to support those efforts. Finally the tail, federal resources, will act, to support the state and local response, but only once the federal agencies know that nature, type, and amount of support needed.

4.2 Hazardous Materials

An important aspect of PDD 39 was the recognition of the potential of chemical, biological, nuclear, radiological terrorism, in addition to the already commonly encountered explosive, incendiary, and firearms based attacks that have been commonly encountered. In the fall of 2001 the USA experienced seven attacks with biological agents (anthrax letters), which resulted in hundreds of thousands of fear-induced reports of suspicious items, as well as several hundred actual hoax incidents. Since then a number of chemical and biological incidents have been thwarted domestically, while internationally a number of attempts to procure radiologicals have been interrupted, and on at least two occasions radiologicals have been used as assassination weapons.

As a greater number of fields become involved with anti-terrorism response, the knowledge base for each must also expand. For example, an ever-growing slice of the law enforcement community is being trained as hazardous materials responders. Initially, this was the bomb disposal community, which is tasked with incident response, device and manufacture disablement, and overall hot zone operations. Many tactical teams have since become hazmat qualified, to permit them safe entry into clandestine laboratories to arrest perpetrators, and to function at incidents where security for other responders must be provided. Forensic personnel, especially crime scene investigators, are obtaining hazmat training to permit them to conduct investigations. Additionally, many narcotics investigators have been trained in hazmat response due to the increasing number of clandestine drug laboratories being encountered.

For outside fields whose expertise may be called upon for such incidents, the nature and extent of this training should be dictated by the needs and level of involvement perceived. For many in advisory or administrative roles, well-rounded training exposing the professional to the variety and nature of threats may be of most value. Many in environmental protection field are already trained in hazmat response, and will benefit most from training regarding the threat and training to tweak their professional skills for application on the terrorist or criminal scene.

A wide variety may need to look to both overall training on threats, and more intimate, technical training. Public works and utilities personnel may be needed to operate

heavy equipment or assist in inspection or mitigation efforts in the hot-zone. Emergency physicians and nurses may need to respond to a hot zone to support fire rescue operations, or may find it necessary to establish decontamination at medical facilities for self-transported victims who need to be triaged safely, without entering and contaminating hospitals. Scientists, often locally available from academic and industrial facilities, may be valuable resources, not only in cold zones for reference or research, but also operationally in the hot zone.

Obviously, every professional or agency will need to determine its role, and train to fulfill it. If in doubt, one may train to a higher level – it is never wasted, as the knowledge will have further users, and may prepare the individual for other capabilities as well.

A wide variety of sources are available for training. Locally, many police, fire, and emergency management agencies present or host a variety of programs, many open to a widely defined emergency response community. Many professional organizations also provide programs, often tailored to the needs of their members. Academia, from community colleges to major universities, offers a wide variety of programs, including vocational, certification, and college credit. Additionally, a wide variety of governmental, academic, and other organizations offer many online programs, many free of charge.

Hazardous materials training is governed by the Occupational Safety and Health Administration (OSHA) standards set forth in 29 CFR 1910.120. At the technician level, which is the level needed for functioning on a hazmat incident, a minimum of 40 h of training is required. This is available from many sources. Many fire academies provide this training, often referred to as hazmat technician for the emergency response practitioner, or HAZWOPER for the industrial specialist. These programs basically differ in that the hazmat tech includes emphasis on mitigation; HAZWOPER provides more training on monitoring skills.

Public service responders may attend training at FEMA's Center for Domestic Preparedness (CDP), in Anniston, Alabama. Part of the DHS National Domestic Preparedness Consortium, CDP offers a wide variety of training programs aimed at responders to chemical incidents. As well as a forty hour hazmat tech class, it includes investigative programs, a wide variety of programs for the health and medical industry, and, at advanced levels, practical training in live chemical agent atmospheres.

Other participants in the National Consortium include Louisiana State University, which hosts a number of programs that are conducted locally around the nation. Also, the Nuclear Test Center near Las Vegas Nevada hosts several programs dealing with nuclear and radiological threats. New Mexico Tech, through its Energetic Materials Research and Testing Center, hosts the Incident Response to Terrorist

Bombings program, which introduces the student to bomb and explosive technology, bombings and management, preparatory concepts, and provides the student the opportunity to witness explosive effects from small quantities to the detonation of a car bomb. National Consortium programs are provided fully funded to qualified participants.

The Urban Area Security Initiative (UASI), conducted by DHS, provides funding, training, and exercises to agencies in identified urban areas nationally. Qualified agencies may participate in these programs, at no cost. The nature of the programs vary, as each UASI establishes its own priorities based upon local demographics.

Beyond training, other avenues exist for professionals who may become involved in WMD, disaster response, hazardous materials incidents, and similar events to establish lines of communication before finding themselves involved in an incident. Involvement in these activities and organizations provide members the ability to extend their professional network plus add to their knowledge and test their overall depth of knowledge.

In 1988, the Superfund Amendments and Reauthorization Act (SARA) under the Emergency Planning and Community and Reauthorization Act (EPCRA) established the Local Emergency Planning Committees for Hazardous Materials (LEPC) as a national mandate. A priority of LEPCs is to collect information on SARA Title III Extremely Hazardous Substances (EHS) in the community, and disseminate the information as needed. However, LEPCs also perform important functions in providing training, personal networking, and public outreach.

Each state administers its LEPC program to its needs. EPCRA requires each governor to appoint a State Emergency Response Commission (SERC), which then administers the LEPCs. In some, is a county agency. In others, it is based on regional divisions. For example, Florida's program is administered by the Department of Community Affairs, through the regional local planning agencies. Most regions are multi-county areas, encompassing areas with shared populations, commerce, and interests.

EPCRA requires LEPCs to have a multifaceted membership. Membership is to include elected state and local officials, police, fire, emergency management, public health, environmental, transportation, hospitals, facilities, community groups, and the media. This diverse membership ensures a valuable mix of knowledge within each LEPC. It also provides each member an opportunity to learn and network with members of fields who may not be encountered in one's routine operations.

Along with maintenance of Sara title III lists of EHS chemicals, most LEPCs provide other valuable community functions. These include providing training to local businesses on Sara title III reporting, technical training for local hazardous materials responders, and multijurisdictional

evaluated exercises, permitting a wide variety of local agencies to determine their status as to communications, training, equipment, ICS, and other critical aspects of incident response. Additionally, LEPCs participate in community outreach events, educating the public about hazardous materials, safety, and emergency response.

Depending on your field, there are an ever evolving number of volunteer organizations where your participation will provide formal and informal training, opportunities to network with a variety of professionals, and give back to your community. Some may be as traditional as auxiliary police and volunteer fire services; others are new concepts, such as search and rescue teams, mortuary assistance organizations, and others providing professional services and support to often under subsidized services.

The Florida Emergency Mortuary Operational Response System (FEMORS) is a state-level group providing similar services as those of FEMA's Disaster Mortuary Operational Response Team (DMORT). FEMORS membership includes

forensic pathologists, forensic odontologists, forensic anthropologists, mortuary service professionals, a variety of criminalistics specialists, behavioral science support personnel, and a variety of members to provide adjustable support.

The potential of mass terrorist attacks has certainly reconfigured the face of emergency service responders. A wide variety of specialists, representing government, academia, health, and industry, are finding themselves incorporated into the response planning for a growing number of incidents. Because of this, knowledge of ICS operations, basic training in hazardous materials safety, and an appreciation of others' roles becomes crucial. Whether a terrorist incident, a natural disaster such as Hurricane Katrina, an environmental emergency such as the BP Gulf oil spill, or any other major response, a wider group of professionals than ever before are being called upon to support response, relief, and recovering of. A strong knowledge base as well as acquaintance with other professionals bodes well for success in these operations.

Interviews and interrogations are the cornerstone of the investigative process. Succinctly put, the interview is a conversation designed to gather information, and an interrogation is an interview of a suspect with the aim of gathering information on self-guilt.

The interrogation is primarily a tool of law enforcement officer; although as a supervisor it may fall to you to conduct an interrogation as part of an internal investigation, it is not within the scope of this work. Conversely, interviews fall within the scope of any professional, and thus are included in this treatment. However, be aware that the interrogation is an extension of the interview; thus the ability to interrogate is based upon first having the skills to successfully interview.

As professionals, and indeed anytime we speak to someone from whom we hope to obtain information, we are conducting an interview. Whether a function as simple as gathering name and contact information to conducting an in-depth, fact seeking interview, we must consider our approach, its effect on the other person, and plan our words to garner cooperation.

A proper approach to an interview may well set the stage for valuable information gathering, where a lackadaisical, uncaring approach may fail to elicit information, and may even result in a slamming of the door. Set your mind first. It is not simple but necessary to set aside all other thoughts – personal problems, professional office concerns, etc. Coming in with your attention split, your vision clouded by other considerations, will telegraph to the interviewee, who should feel your full attention. Likewise, refrain from sarcasm, off-color humor, or any other behavior that could offend your subject, at least until you have established rapport and understand the person.

Some aspects of information gathering did not lend themselves to in-depth interview techniques. A medic treating a patient rarely has the time to enter into deep conversation. However, even here approach may make a significant difference in what is learned. A person who feels emotionally

comfortable will be more likely to share detail – “it hurts here,” “I don’t feel my feet,” “I hear lots of rushing water,” as opposed to the individual who is uncomfortable and unsure, whose comments are more grunts than words.

Preparation for an interview starts long before being called to incident. It is important to understand some cultural differences among people. This is especially important when working among recent immigrant populations. Assimilated American populations have some cultural conversational techniques – arms length or greater personal space, establishing eye contact, gender equality, the shaking of hands as a greeting. Other cultures do not share these – in some, one never looks at an authority figure’s eyes. In others, women did not participate in “business” talk, and the interviewer must establish trust to obtain the cooperation. It is not possible to know all the different cultural differences. However, becoming aware of the prevalent groups in the locale will greatly aid in this, and other, aspects of work. In addition, there are valuable guides from professional organizations to provide direction for interfacing with a wide variety of cultures.

It is also important to set aside one’s personal prejudices when conducting interviews. Historically, immigrants to this country did not speak the language of their new country. No doubt, the Wampanoag and Pequot tribes questioned why the Pilgrims did not learn their language. During the great immigration of the late 1800s and early 1900s immigrants from Germany, China, Italy, Japan, Poland, Russia, and many other nations arrived, speaking only their native tongue. Some learn English, many did not – but their children and their grandchildren did, just as today’s Hispanic, Vietnamese, Haitian, and others do.

When preparing for the actual interview, if possible, do some research into your subject. Gaining some background will guide you to an approach – is the person educated, successful, new to the area, a family person, etc. Today, it is quite simple with the Internet to learn quite a bit about many people. With any degree of prominence a “Google” search

may bring up news articles, web pages, book listings, or other material. In many localities, many local records are available online from a variety of government offices. If your agency subscribes to an online service such as AutoTrack take advantage and learn what you can about the individual.

When conducting a formal interview, it is valuable to have two persons present, with each having a different interview style. First, if it appears the first interviewer cannot deal with the subject, it is more likely the second will find rapport. Second, the uninvolved interviewer should stand back, not part of the scene, and be a second set of ears, and possibly the note taker. This redundancy in listeners helps to ensure that every detail is heard and recorded. It also ensures that a different viewpoint is observing and able to analyze alongside the primary interviewer.

It is the interviewer's role to establish a level playing field. Experienced police investigators have learned to quickly size up the subject. When dealing with a person who, for economic, cultural, or other reasons, would feel inferior to the investigator, a detective will take steps to raise the person's self-esteem – refer to them by a formal name, “Mr. Smith,” “Ms. Black,” offer to make them physically comfortable with a chair, drink, snacks, etc. Conversely, to avoid having a person of power and prestige attempt to control the interview, the investigator may use subjects first name, while maintaining a formal presence as “Detective Brown.” It is not to demean, but to establish control and to ensure the interviewer is able to direct the conversation guided toward the information needed.

Successful investigators all agree the first step in a productive interview is to establish rapport. Starting in “name, rank, serial number” gets you name, rank, serial number. Start with an introduction appropriate to the situation. With Americans, this will usually be a handshake and an exchange of names, with some cultures it may require first identifying a leader who will then permit the interviewer and formally introduce you. With some cultures it may not entail touch – handshakes may be out. Cultural familiarity will bridge these differences and get your interview off to a good start.

Next, make a person comfortable. Physically, this may be dictated by the locale, but still, the more comfortable and relaxed, the easier to establish rapport. Obviously, if you are only interested in digging a few shovels of soil, a preparation may be minimal. However, if you need to mine deeply for precious nuggets, take the time to establish a good rapport. Find areas of commonality – family, sports, hobbies – or get them to expound on some area of interest and show your enthusiasm to learn more. The fact that you do not know the difference between a hubcap and a can of V-8 does not mean you cannot listen as your subject goes into a description of NASCAR. A little interest, some meaningful questions on their area of knowledge and you will forge a bond that will soon pay off.

Often, the person to be interviewed as is an illegal alien. Whether the victim of an act of violence, a witness to any kind of incident, or even the labor hired to undertake a potentially illegal operation, they possess valuable information. However, more so than the cultural differences encountered with most immigrants, these individuals will fear a representative of the government. First, they will fear the potential of deportation. Second, because many of them fled oppressive governments, they fear the government, not recognizing that the American system is a multiethnic where strength is derived from its diversity.

Indiantown, Florida, is a popular destination for Indians from the mountains of Guatemala, who had been subjected to violent discrimination by the majority government. When they first began arriving in the 1980s, they would conceal their being victims out of fear. Further, when arrested for driving and alcohol offenses, they would fight police, expecting to be tortured or murdered. Soon however a metamorphosis occurred – they saw the American law enforcement, first, wanted to know whether they were victims of street robberies and would track down those preying on them, and second, upon arrest, would take them to a kind of hotel, given them a bed, feed them well, let them work but not overly hard, and later release them. They have rapidly assimilated into the community of Martin County, Florida, since then.

When dealing with this type of population, it is important to reassure them. First, that you are not an immigration officer – your interest is to help them or another, or to look into some incident they witnessed or innocently participated in. Second, especially if they are recent immigrants, help them understand that neither the criminal justice system nor government in general in the United States practices mistreatment of individuals or groups.

The federal government provides a tool for law enforcement when dealing with illegal aliens who are the victim of a list of about 20 serious felonies. Known as the U-Visa, it may be granted to the victim of a crime, and will include immediate family. The U-Visa functions as a 4-year grant of temporary legal status and work authorization. The application must indicate how the victim can assist in the investigation, that the victim will cooperate with investigation/prosecution, and that the crime occurred in the USA or was a violation of American law. The application must be certified by a judge, chief law enforcement officer, or chief prosecutor, and is then submitted to immigration officials will investigate to ensure that the case meets all legal requirements.

A valuable adjunct for dealing with immigrant populations is the U.S. Department of Justice, Federal Bureau of Investigation law enforcement training document *Intercultural Communication: Tips for the Investigator*, published by the FBI Academy in February 1987. This guide provides the interviewer with information as to proper greeting, visitation rules, gestures, cultural attitudes, etc., for

dealing with 50 different nationalities. It may be found in some law enforcement agencies libraries. However, the basics of the guide were derived from the Culturegrams produced by the David M. Kennedy Center for International Studies at Brigham Young University, and may be accessed on-line at <http://www.culturegrams.com/>.

To establish rapport, a number of behaviors aid greatly. Provide your contact information, and emphasize that you are available if they remember learning anything not already covered. Unless the encounter turned adversarial, try to maintain a calm, soft-spoken confidence. Attempt to be empathetic and sympathetic – even interviewing someone who may be responsible for a problem or crime. Good cop/bad cop is a well-known technique – it should only be used when the “bad cop” is a fleeting presence, and is designed to strengthen the good cop’s position.

Often, one will encounter multiple witnesses at one time. It is important to separate them, to prevent them from communicating or overhearing each other’s statements. Either of these may act to contaminate their recollection. While it is nice for everyone’s statements to be consistent, in practice things are not. Each of our experiences color what we perceive. Add to this physical differences – height, hearing, and vision – and each witness may truthfully testify differently. By recording each individual’s observations, one may later filter the information to make sense of inconsistencies. But if permitted to interact and pollute each others’ perceptions, valuable information may be lost to individual insecurities or a natural leader’s apparent strength.

Especially, when conducting important interviews, there are no timetables. Once you establish rapport, get them to talk about the incident, and then let them talk. Do not interrupt unless it is to direct the witness back to the subject. Do not take notes as they speak – this may send the message that you think they said something important, and misdirect a train of thought. If not recording the conversation it is often valuable to have a second interviewer talked outside their site, quietly taking notes.

Ensure that you requested cannot lead or color their reply. “What did you see next?” “What did those guys say?” “How tall was the person?” Reach out for them to supply the answer. Asking “did you see a yellow car?” “was he six-foot tall?” “Did Snake Eyes tell him to move the box?” directs the witness’s answer. You may receive accurate information, but in court such questioning may result in a judge disallowing the entire interview as potentially tainted.

One of the first lessons a trial attorney is taught is to never ask a question he does not know the answer to. In a similar vein, never make a statement to a witness which they know is wrong. Do not lie. Do not guess. Do not use hypotheticals (unless they are a technical expert you are trying to have help you understand a situation). You do not want your witness (or suspect) to doubt your sincerity, knowledge, or competence.

Several times reference has been made to two interviewers handling a witness. In building the team, recognize that we are all different. It is often valuable to pair up two dissimilar personalities for the team. Very early on, while establishing rapport, they will come to appreciate the witness’s personality. Understanding each other, one whose style suits the interview may step forward and take the lead, the other disappearing into the wallpaper to record the results.

There are circumstances where it is valuable to have a family member or close friend to provide comfort to the victim/witness. First, ensure that it is a good choice – the parent of a rape victim may result in a shutdown, where a best friend may provide the sympathetic support needed. Second, explain to this support person their role is to be a warm, supportive person – not to speak, not to ask questions, not the answer, but to quietly reassure by their presence.

Rarely should any interview become confrontational. The interview is to obtain information – heated discussions, upset witnesses, and an abrasive atmosphere will not open a path to information. As one highly experienced investigator commented, to obtain confessions from sexual offenders, he professionally established “friendships” with them where they have confessed to them, and later, at sentencing, turned to him to say hello and thanks for his attendance at court, as a friend.

Whether a victim, witness, or suspect, a successful interview provides them the opportunity to share information, even a serious secret. It permits them to relieve stress of holding that information alone, feel value in themselves or in front of society, and for suspects, permit them lessen their feelings as an evil monster.

Children present an especially challenging population. Not only are there wide variances in development by age, but also individual maturity varies tremendously. You may encounter a precocious 10-year-old who communicates on level with an adult, only to next contact an immature 17-year-old Valley Girl.

Development of rapport is especially important with the child. During this time, evaluate the child’s level, to determine what may work at that level. You never want to talk down to the child, or pummel the witness with an advanced vocabulary.

A child may recognize a word, but not apply the meaning meant by your use of the. Privates – may be construed by the little boy to refer to isolation, and may not be recognized as meaning sexual organs. It may be best to permit the child tell the story in her own words, and then go back to obtain clarification as to exactly what the child means by certain words there.

With children, it is especially crucial not to suggest answers. “What happened?” “what happened next?” “And then” are better than any leading form of questioning. A child’s mind is especially open to imprinting – and once

there is potential that it has been contaminated, not only may the immediate interview be suspect, but possibly future statements as well.

Don't appear as a bad guy in front of children. Not just to them, but also in other conversations they may observe. They will not understand you need to be harsh with a third party – instead they will see you as a frightening person, as understanding as you may be with them, and refrain from opening up in fear you may be upset.

Video is especially strong tool when dealing with children. Not only does it show your exact words and actions, and that you did not contaminate the witness's statement, but it also records the child's physical reactions and actions, which may in themselves be testimonial.

Dealing with children, especially as victims or suspects, may entail legal considerations. Many states have laws detailing how, when, where, in whose presence juvenile suspect interviews may be made. In the late 1980s, as the extent of sexual child abuse became known, many judges established rules limiting the number of interviews a juvenile victim could be exposed to. If your work brings you into these type of situations, consult with local law enforcement or juvenile authorities to learn what the current parameters are. Many a medical professional decided to conduct an in-depth interview where local rules limiting limited a child to perhaps

three interviews, limiting investigative professionals' access to the child victim.

Information is absorbed by individuals in one of three manners; auditory, visual, or kinesis. The auditory mind hears every word. They may give a vague description, say he was a tall white male, but then note person was from the Midwest because he asked for a "pop." A visual learner will hear words and report them, but will notice the person was 6'2", maybe 250 pounds, with a gray check sport shirt. The kinesis learner notes actions – how someone stands, strokes a beard, and many other individual actions.

Interview techniques are a broad and in-depth subject. Your role may vary – interviews may be minimal for some, may be very deep and probing for other fields. If you foresee your role incorporating significant interview tasks look into attendance at a formal interview class. These are available through law enforcement training centers, and often business training centers (what do sales professionals and managers do – interview). There are a variety of different techniques, some of which may not match your personality, others may be a perfect fit. Many classes introduce concepts from a variety of techniques, some of which may not be applicable to your role or personality. However, once introduced to the basics, possibly follow up with an advanced program for techniques which appeal to your personality and style.

6.1 The Variety of Court Experience

The American system of justice is unique. A federal system, 50 different states, plus 2 commonwealths, 2 territories and protectorates, not to mention a military justice system. Each has its own design, procedures, and peculiarities. To profile all would require a hefty volume, but it is important to understand the basic framework shared by all, its demands and requirements.

First, testimony. The remainder of this chapter will be focused on testimony in criminal cases; the stakes for the defendant are highest and the burden on the plaintiff the greatest. The second level is that of civil litigation. Most often these cases concern money, whether to award damages, punish a wrongful action, or determine ownership. Civil cases also may be looking for direction – one may or may not do something or how something may be done. Regulation comprises a large segment of government activity, conducting rulemaking activities, and conducting on-site judicial hearings with the ability to define and direct action from local code enforcement hearings to actions by a wide variety of federal agencies such as OSHA, ATF, and the SEC. Finally, there are administrative hearings, conducted as a fact-finding tool by a wide variety of legislative bodies from town councils through the United States Congress. As witnesses, one's skills and knowledge may be called upon by any of these to provide testimony to enlighten anyone in a position to legislate or adjudicate matters.

In the criminal system, there is often testimony given before an arrest is made. Although police are permitted to arrest on probable cause for a variety of offenses, it is common to obtain a document, either a warrant or indictment, based upon judicial review of probable cause. To obtain an arrest warrant, an individual (usually but not especially a law enforcement officer) presents an affidavit to a judicial officer setting forth the facts of the offense with the evidence incriminating the suspect. This officer reviews the material

to determine probable cause, i.e., a sufficiency of evidence to lead a reasonable person to conclude the suspect has committed the crime alleged. If satisfied, this magistrate will issue a warrant for the arrest of the suspect directing any police authority with jurisdiction over the matter to place the person under arrest.

An indictment is an order for the arrest of the defendant issued by a judge after review of the case by a grand jury. The grand jury, which will vary in size by jurisdiction from 12 to 24 jurors, consists of citizens, traditionally chosen from the rolls of voters, who are considered reasonable persons, who take testimony from witnesses, aided by a prosecutor, who then deliberate and vote on whether there is probable cause, and for whom. Most jurisdictions use grand juries for capital offenses (i.e., cases where the death penalty may apply) and for investigative situations, especially where public corruption is suspected. In the federal system, the grand jury is the primary method of initiating criminal cases.

In some states the grand jury reviews all felony cases, either issuing indictments, or using the indictment to formally charge individuals following a direct arrest by police based upon probable cause.

Following the arrest of the defendant, there is a flurry of initial activity. Most jurisdictions require a first appearance of the defendant before a judge within 24 to 72 hours. The judge will review the arrest for probable cause, ensure the defendant is aware of right to counsel, and temporarily appoint a public defender if private counsel is not being retained. He or she will also initially review the amount of bail that was set either by schedule or by the judge issuing the warrant.

Most jurisdictions require that a defendant who is still in jail a month after arrest, be returned to court. At this hearing the judge will expect to see that a grand jury indictment or a formal charging document (called an information) has been issued by the prosecutor. If neither has transpired, the judge will conduct a probable cause hearing. At the hearing the prosecution must present witnesses to prove probable cause

and the defense can challenge these witnesses. The judge will then determine whether there is probable cause to continue the case, or drop the charges. The judge may also rule on formal appointment of the public defender, and review the question of bail. He or she can raise or lower bail or release the defendant on personal recognizance.

The months or even years following this will see a variety of pretrial activity. Both defense and prosecution will file motions seeking a variety of orders from the judge. These may include appointing expert witnesses at government expense (indigency), orders permitting an expert to review, test, or analyze various evidence, and orders for psychological, physical, or other examinations of the defendant, plus motions challenging the propriety of evidence, statements, etc. in the case.

Motions may trigger actual hearings, where witnesses may provide testimony. For example, a suppression hearing (challenging the propriety of evidence, with the potential of preventing the presentation of evidence at trial) may require witness testimonies to determine if the development of the evidence met legal requirements as to search, interrogation, or other aspects.

Hearings may also be used to determine how to proceed. Often, a competency hearing may be used to determine if a defendant either was criminally competent at the time an incident occurred, or is competent to stand trial now. Here a variety of witnesses may be called, including fact givers on the case to medical and psychiatric specialists who may testify to the defendant's mental state.

Some of these motions may initiate activities of outside specialists and experts. Pre-arrest, a search warrant must be obtained to force a defendant to operate against self-interest, e.g., providing a handwriting standard, blood sample, permitting an odontologist document dentition. Postarrest, the presiding judge rules on such a request and issues an order compelling the defendant's cooperation. If you are conducting such an examination pursuant to an order, carefully read the actual document, to ensure you understand the extent of activity that the judge has permitted.

A formal fact-finding hearing used by defense counsel is the deposition. Both defense and prosecution are entitled to take sworn testimony of all potential witnesses prior to trial, as part of the process known as discovery. In a deposition testimony would be sworn and recorded, and usually much more in-depth questions will be posed to the witness than will be asked in the courtroom. This provides counsel the opportunity to learn what the witness knows and can testify to and to determine the witness's abilities under the pressure of pointed questioning.

Because the main purpose of a deposition is fact-finding, the witness should be prepared to provide highly detailed answers on all aspects of the case. It is also opposing counsel's first opportunity to meet the witness and learn specific

details. The witness should be prepared to answer a wide variety of questions relating to his or her background. As a professional, it is beneficial to come equipped with your resume, containing a well-summarized listing of education, training, experience, research, publications, memberships, and awards. Recognize that this is all subject to verification; especially in a major case. An attorney may detail an investigator or researcher to verify all claims made. Falsification or exaggeration not only undermines one's credibility, but also exposes a witness to criminal sanctions for perjury.

As the case proceeds toward trial, a witness may be bombarded with subpoenas. They should be carefully read. Some, such as for a deposition, would likely be a one time requirement and should be honored. It is possible to appeal to counsel to reschedule a deposition; at times, counsel will contact the witness in advance to try to schedule a convenient time. However, failure to appear exposes the witness to being called before a judge, having one's testimony potentially excluded, and even to being found in contempt of court with a jail term imposed by the judge.

The greatest flurry of subpoenas will be for trial testimony. Depending on the severity of the charges, a case may take from a few months to 2 years to come to trial. In a large, busy jurisdiction it is but one of hundreds or thousands of cases progressing through the halls of justice, all requiring scheduling of time for the judge, defense counsel, and prosecutor. Often the case may be scheduled for a docket date, only to be pushed back due to conflicts in any of their schedules or due to other demands of the case. Most subpoenas now include contact information for the party requesting the witnesses; maintain contact with counsel, learn what the status of the case is and also provide them with as much lead time as possible for any conflict you may encounter. Given sufficient notice, counsel may be able to schedule testimony around the conflict. However, understand and be prepared to honor any subpoena in the event rescheduling can't be accomplished.

During this period of discovery, motions, and depositions, many cases will be disposed of. Some cases may be dropped by prosecutors who feel the case cannot be won at trial. Some are bargained and pled out to lesser offenses and lighter sentences. In some cases, a defendant may trade information for leniency or even freedom. For the remainder, culpability will be decided in the courtroom.

Trial is the pinnacle of the justice system. It may not be the conclusion of the legal case – appeals may be made to higher courts, but they are a technical review of the trial. It is the trial where the state presents its case factually to an impartial arbiter. Here, the defense attempts to cast doubt on the prosecution's case. A judge functions as an authority on the law, determining admissibility of evidence and testimony, and delivers direction on the specific application and meaning

of the law. That impartial arbiter, either a jury chosen from citizens of the jurisdiction or the trial judge, will hear the testimony of witnesses, view and examine physical and documentary evidence, and then carefully consider their relevance, and determine if the defendant is guilty of the charge; guilty of a lesser charge; if there is insufficient proof to convict; or on rare occasions a jury may deadlock if unable to agree to convict or acquit.

The trial begins with a flurry of activity. If a jury trial, a panel of 6–12 jurors, plus one or two alternates, will be chosen. This entails a process known as *voir dire*, where each counsel questions potential jurors, and may excuse individuals, based upon the attorney's conclusion as to whether that person will be more favorable to their side of the case.

Most trials open with a variety of motions dealing with technical aspects of the trial, and most commonly, the defense invokes the "witness rule." The witness rule is a procedural rule permitting either side to preclude the presence of witnesses from the courtroom during trial other than when they testify. Witnesses will spend their time waiting to testify in the halls or occasionally in a witness waiting room.

A trial is a highly structured debate. The prosecution will first present its case, using a variety of witnesses who, based upon the prosecution's study of the case, are considered capable of proving the charges. As each witness presents testimony, the defense is able to question, or cross-examination, them to either bring out facts favorable to the defendant or to possibly discredit the witness in the eyes of the jury. Occasionally, it becomes a ping-pong match, going from direct testimony and cross-examination to redirect to re-cross-examination, until counsel have exhausted the witness as a source of information.

Upon completion of the prosecution's presentation the defense will raise a motion for the judge to direct a verdict of acquittal claiming the state failed to establish *prima facie* evidence of the defendant's guilt. Rarely will the judge rule in favor of this motion, although it occasionally does happen, and when it does, it is a major embarrassment for the prosecution.

The trial is now turned over to the defense. A defendant is not required to provide a proactive defense, nor to personally testify. At times the defense rests at this point. However, testimony may be presented; personal witnesses to contradict the state's case, character witnesses to tell the court the defendant is not capable of such a crime, and expert witnesses brought in to either counter technical aspects of the state's case, or to otherwise provide exculpatory evidence to the court. The latter is especially true in the case where the defense hinges on the emotional state of the defendant, and medical, psychiatric, and psychological experts may be brought in to explain how the individual is not sane (i.e., generally, not capable of determining right from wrong) or otherwise not legally responsible for the crime.

After the conclusion of the defense's case, the prosecution may offer rebuttal witnesses. These are witnesses whose testimony specifically contradicts arguments made by the defense. They may be experts with differing opinions on the evidence, witnesses who may discredit defense witness testimony, or presentation of evidence (even evidence that the prosecution was forbidden to introduce in its initial presentation of the case – the defense having "opened the door" during its presentation) which may directly contradict a defendant's testimony.

The defendant has a constitutional protection from being compelled to testify. In many, if not most cases, defense strategy is to avoid defendant testimony. When the defendant does testify, it may expose the defendant to being discredited by the prosecutor on cross-examination, which the defendant is open to by taking the stand. If defense counsel does place the defendant on the stand he or she will usually be very confident that the prosecutor will not be able to impeach or otherwise discredit the defendant.

Following the conclusion of testimony each counsel will present closing arguments. These will be a summary of the points in favor of either conviction or acquittal, and sometimes emotional appeals to the jury. The two parties then rest.

In a jury trial, the judge must charge the jury. This means the judge, as the court expert on the law, will explain to the jurors the laws which apply to the case, plus any lesser charges which they may be entitled to consider. For example, the charge of first-degree murder may include lesser offenses of second-degree murder, manslaughter, and even nonhomicide offenses such as aggravated assault. The judge will explain to the jury the standards they must use to determine guilt or innocence. The jury will then go to a closed room to deliberate.

Whether by jury or judge, deliberation is a period of filtering evidence, considering all aspects of witnesses, their testimony and credibility, and determining if the prosecutor has proven the case beyond a reasonable doubt. Once that decision is made, it is announced in open court. If an acquittal is announced, the defendant is released unless there are other charges pending. If a mistrial is called due to a hung jury, the defendant status remains unchanged pending a decision by the prosecution to retry or drop charges. If a conviction, the defendant may be continued on existing bail until sentencing or may be remanded to jail.

If convicted of a capital felony (death is a possible sentence) the jury will be required to return to sit for the sentencing phase. At this "trial" the prosecution will present evidence to prove how the defendant's actions were so egregious that they have legally risen to justify imposition of the death penalty. The defense will argue against such aggravating circumstances and may also present character witnesses who have no personal knowledge of the case but are intended to influence the jury on an emotional level against voting for

death. After this second trial phase, the jury will return a recommendation to the judge who will impose sentence.

In nondeath cases, the judge will set a date for sentencing, order a presentence investigation (PSI), and decide to continue bail or remand the defendant to jail. A probation officer generally conducts the PSI; during this, the defendant is interviewed, prior criminal records and other relevant facts (such as psychological defects) are reviewed. At the sentencing hearing, the prosecutor will recommend a sentence, the defense may argue against that, victims may testify as to the effect on their lives, and witnesses may be called to testify concerning the character of the defendant. Finally, the judge decides final sentence, paying special attention to the statutory provisions of the crime and the conclusions of the PSI, which is often translated into a score giving the judge guidance in setting a specific sentence. The final sentence may include jail or prison time, financial penalties and costs, community service, probation time, or a combination of these.

Postconviction, the defendant has the right to appeal the conduct of the trial and the sentence imposed. These are technical reviews by higher courts which may affect the trial and sentence; completely overturn the court decision; or overturn some aspects and require a new trial or sentencing hearing. These appeals often take years to complete, especially if the results on an appeal are further appealed to yet higher courts, potentially to the United States Supreme Court.

The American trial system is a complex justice system, designed to protect the rights of the accused including maintaining the presumption of innocence until proven guilty. It works because it is based on the protection of the accused as a protection for the rights of all.

6.2 Testimonial Demeanor

Witness composure and demeanor will have effects on the trial. Both counsel continually modify their tactics based upon their interpretation of the witness's strengths and weaknesses. The judge will take note of the witness. Spectators in the courtroom, whether media, professional superiors, or interested members of the public, will draw conclusions concerning the witnesses' professionalism and capabilities from their observations in the courtroom.

Many years ago the author had several cases where the defense attorney was a specialist in major drug smuggling cases. A professional friendship developed, even though they were on opposite sides of the cases. One day the attorney observed, "I hate you and the DEA supervisor. Every other officer I deal with I can wind up, but the two of you just answer my questions, don't take offense, don't become defensive." These were words of high praise, as the cases he handled were generally open and shut and his best offense

was to let law enforcement embarrass itself, be seen by the jury as having an emotional stake in the outcome, and lessen the credibility of the investigators.

Demeanor is judged on several factors; physical appearance, factual presentation under direct examination, and the ability to handle the pressure and stress of cross-examination. Also, the mechanics of testimony has an impact, both psychologically with the jury and also in gaining respect from the courtroom professionals, especially counsel and judges.

Dress codes for depositions or other noncourtroom testimony may be loose, but even then you must consider the professional image you are trying to project for yourself. The specifics that follow apply especially to courtroom testimony.

A courtroom appearance gives new meaning to "dress for success." Over the years, a number of studies have been conducted of the public (the jury pool) as to what an "expert" should look like. Agencies or business offices may have a specified dress code for their personnel. Even if not appearing as an "expert," nor under the policies of an employer, as a professional flip-flops and a tank top are not appropriate.

Not that many years ago, "white-collar" and "blue-collar" had significant meaning. Blue collar was a dress code on the factory floor, the construction site, or on a farm tractor. Anywhere else, dress was a white-collar image – tie and jacket. Over the past 40 years, standards have relaxed significantly – business casual has become standard in many office settings, dress down Friday is common in many if not most offices, and even banking and the legal community wear fewer ties.

Nevertheless, one should strive to present a professional appearance during testimonial activities. Outside of the courtroom such as interviews and depositions, business casual may be acceptable. For uniformed services, this may mean a standard working uniform (collared shirts and long pants). For others, this may permit slacks and a polo shirt.

For court appearances this should mean business appearance, at a minimum a tie, jacket, and slacks, conservative dress or skirt and blouse. For uniformed personnel, this should translate to a class A uniform. If one is to formally provide expert testimony, or to provide testimony where you wish to be viewed as a subject matter expert, a higher standard should be adopted. For many this will translate to a dark blue or dark gray suit, light blue shirt, with a conservatively colored tie; for women, this would be a similarly colored suit [1].

Short of the courtroom, many testimonial activities take on familiar tomes. This is especially true in intake hearings and depositions, where often the various counsel and professional witnesses are well acquainted. Nevertheless, once formal statement taking begins, the witness should be the quintessential professional. It is not the witness's place to

make jokes; if counsel does, the witness may rightly join in with a laugh, but, recognize it is being recorded. In the courtroom, if something obviously funny should occur, as a witness, remain composed; if appropriate, a smile may cross your face, but maintain a professional countenance and refrain from joining in laughter.

In the trial, testimony begins as the witness approaches the stand. Project a confident, but not arrogant, gait. Upon approaching the stand, ensure your right hand is free, raise it to heart level, facing the officer of the court who administer the oath, and upon its completion state “I do” in a strong voice with a moderate tone. As one prepares to take a seat on the stand, carefully place any materials which accompanied you (files, records, demonstrative materials) on the floor or on the shelf, out of view of the jury. Sit and adjust the seat so that further movements are not necessary. If there is an adjustable microphone, you may need to adjust its head to your face so that it picks up your testimony.

Basics of testimony: When questioned, face the attorney directing the question, then turn to look at the jury to answer – they are your audience. If the judge asks you a question, turn, listen, and direct your answer to him – the judge only interjects when a question of law must be decided. During your testimony either counsel may raise an objection. Immediately stop, sit calmly, and wait for the judge to rule. Do not show emotion; it is not directed at you, but rather to ask judicial advice on the question’s propriety.

During the course of testimony, the witness may be asked to step from the witness stand, to either show jurors evidence closely or to participate in some type of physical demonstration. Do not immediately vacate the stand. If counsel has not done so, first turn to the judge and ask – “May I step down, Your Honor?” This small piece of etiquette demonstrates respect and recognition that this courtroom is under the jurisdiction of the judge. Judges appreciate your respect and jurors will be impressed by your regard for the court. You may protect your counsel and even yourself from a tongue lashing by a jurist who feels those before the court are not showing appropriate respect.

Handling physical or documentary evidence in open court requires some finesse. First, if there is potentially hazardous evidence, i.e., bloody or other body fluid-contaminated evidence, have a pair of protective gloves in your pocket. You may have brought evidence in with you, or counsel may already taken control of it. If the material has not been accepted by the court as evidence and published to the jury, be very careful to protect the evidence from the juror’s view. If sealed in packaging, you may be presented scissors or another tool to open the package. Try to do so outside of the jurors’ sight – below the top of the witness stand rail, or by turning your back to the jury. After counsel presents it to the judge for admission, and the judge grants its acceptance, the jury may see it. At that point, you may even be asked to

approach the jury and publish the evidence, showing it to them close up and answering questions from counsel as you do. Upon completion of testimony, counsel may collect the evidence; otherwise leave the evidence at the witness box for the judge to direct its handling.

Upon completion of testimony, if counsel does not ask the judge, you may ask “may I be excused?” The judge first ensures neither counsel has further need of your testimony. If none is indicated, the judge will excuse you, which releases you from the case and permits you to go about your routine business. Sometimes a judge may release you but state that you are subject to recall; in this situation you should stay available by phone at short notice. On occasions he may neither excuse nor release you. You should stay in the immediate vicinity of the courtroom for recall.

Your true impact as a professional a witness is your testimonial demeanor. Witnesses have been called into court at the last minute in work clothes and gone on to provide highly informative compelling testimony. Others have appeared in a three-piece professional “uniform” only to have their testimony discredited and be dismissed in disgrace.

The primary word, above all others, of any testimony is – truth. During the investigative stage of the case both sides try to delve into upcoming testimony and witness backgrounds. Perjurers are almost always detected. During the various court proceedings, it may discredit the witness and the court may disallow testimony. If sworn testimony – a sworn statement, deposition, or court proceedings – it may result in criminal charges of perjury, almost always a felony. It may also result in referral to one’s professional licensing board where licensure may be suspended or permanently revoked.

Human beings make mistakes; if they admit a mistake the degree of culpability is lessened. However, once any lie is uncovered the act is seen as a malfeasance – an intentionally bad act – and responsibility is assessed accordingly.

If you committed an error in testimony, make it known to the counsel for whom you appear. They can determine its effect on the case and adjust accordingly. They could have you testify directly to it or they may feel it is inconsequential, let it pass, and rise to defend you if it later becomes an issue.

Most often, we do not realize our mistakes. Well-prepared counsel may detect mistakes and may only call attention to them when you are on the stand. This is not the time to become defensive. Take a moment to review the material in question (a report, the transcript of the deposition, calculations, the report of opposing counsel’s technical witness). If there is an overlooked typographic mistake, say so and orally enter the correction. If you made an actual mistake in your original work, admit it. While you have lost some professional credibility due to quality issues, you have gained the respect due those who admit and accept a mistake.

A pitfall to avoid is that of obfuscation. Your testimony will not always be as strong for your counsel's case as you may wish. Attempts at obfuscation become a showing of partiality. Testify accurately without trying to paint a rosy picture.

A number of years ago, a prosecutor was troubled by an officer's testimony that no fingerprint processing was conducted because the officer (patrol, not an investigator) knew from experience that no prints could be obtained from such a surface. The prosecutor then used a latent fingerprint expert to explain to the jury why latent fingerprints may not be recovered. For the prosecutor, true transparency was achieved by admitting that in the real world physical evidence could not always be recovered and educating the jury on how and why it happens.

The concepts of accuracy and precision are often lost on people. Rather than a textbook definition, consider a tongue-in-cheek one; modern artillery is accurate, capable of placing multiple projectiles into a target area measured in a radius of a few yards from a distance of miles. Today's sniper is precise, capable of placing multiple, small diameter projectiles on multiple human targets consecutively at ranges of up to a mile. In testimony, accuracy is accurately paraphrasing a witness's comments; precision is delivering exact quotes in describing the speaker's intonations.

There are higher expectations for professionals than for a layperson. This is not to say that credibility is lessened by not reporting the exact words of a third-party speaker uttered while the witness was busy conducting their primary job. However, one's ability to communicate direct observations, whether technical, of interviews, or of observations, will be judged by the audience – jurors, counsel, and judge.

Beyond truth and specificity there are other important aspects to testimony. First, your emotional demeanor is important. Nervousness is not improper; any experienced witness will tell you the butterflies are always there. However, just as in public speaking, while that edge is good, panic is bad. Recognize testimony is nothing more than telling what you know. This is particularly true for a professional. You are not involved in the case; you have no interest in the outcome; your presence is to share your factual knowledge and possibly educate the court.

Emotional preparation is an important aspect. You have heard it in regards to many undertakings – get a good night's rest. It isn't always possible. The most common criminal witnesses, police officers, work rotating shifts covering 24/7/365. Police investigators may not work these shifts, but are subject to call for investigations or follow-up. Because of this, either may find themselves less than optimal in giving testimony. You may be in the same position, a firefighter on 24 hour shift, an ER nurse or doctor, or public works supervisor. You do not have the convenience of taking time off before a court date. When faced with this utilize successful strategies to offset fatigue – meditation, relaxation techniques, power naps.

Closely related to emotional preparation is case review, in detail. The day before, if convenient, while waiting to testify, read your reports, notes, associated documents. Review your photos and any other materials you may have available. You are not looking to memorizing your material, which is all the more true the more your involvement in the case. But you do want to sharpen your knowledge of the case. It may have been 6 months, a year, or longer since your involvement. Your interest has been focused on other work, or a long series of incidents, and you need to reacquaint yourself with the basics of your work on this case to be able to testify knowledgeably and confidently.

The greater your involvement, the more documentation you will generate and collect. Experienced investigators often organize their case files to make later reference easy and fast. Some use file folders to individually hold specific reports, documents, photo collections, etc., each with its own title. That collection should then be organized in a sufficiently large file pocket or file box to permit easy access. Others use binders and index sheets to organize their material. Either, or another system you find useful, aids in reviewing your case actions as well as permitting quick access to specific documents you may need to reference on the stand.

On television the witness always testifies off-the-cuff, from memory. Some in the real world consider this as the proper method to testify. While one may be able to accurately remember all that is necessary for minor involvement, the greater one's involvement, the more information one may have to refer to in court. While you do not want to and should not be merely a report reader, having your references permits you to accurately report details, timelines, etc., which must be precise.

As explained earlier, testimony may occur at various stages of the case. Moreover, you may provide testimony, or at least a formal interview, with your counsel. This will generally be the least stressful testimony you will give. If you routinely work with the system, you may be well acquainted with the counsel. Despite this, during the testimony, maintain a professional countenance. This is an opportunity to practice your testimonial capabilities – your best opportunity to testify without a downside for missteps that may occur. When finished, ask counsel to critique your performance and provide suggestions on how to strengthen and improve your testimonial style.

A grand jury is a formal setting, like court. However, the only counsel present is the prosecution. Their questioning will often have been rehearsed with you, and rarely will the witness encounter a surprise under direct examination. However, grand jurors may question witnesses. These questions may look for clarification, for better technical understanding of how or what you did, be argumentative, or perhaps even inane. The prosecutor will attempt to control jurors and keep their questions relevant to the case and your

role in it. However, a grand juror can make a witness quite uncomfortable. Your best defense is to be well prepared before entering.

A deposition is a semiformal information gathering meeting with counsel. The witnesses are under oath, both counsel are usually present, potentially the defendant is present, and testimony is recorded either by a court reporter or electronically.

A deposition may often be the most stressful testimony a witness may give. It is an information gathering exercise for counsel; part of the discovery process. If counsel feels a witness is not being forthright, is obfuscating, or has personal faults which may affect credibility, questioning may become intense as counsel attempts to eke out all details and discover undisclosed aspects of the witness. The witness should also recognize that counsel may or may not reveal all he knows, especially about the witness. When dealing with crucial witnesses, either counsel may research the background of the witness. Formerly this required an investigator to look into the history of the witness; however, with access to the Internet, much information may be mined on many, if not most, individuals by sitting at the keyboard. Witnesses, especially professionals, should expect that all counsel have researched, vetted, and learned a great deal about the witness.

Trial is the most formal aspect of any testimony. Present are counsel, the defendant, a judge, a jury, clerks and bailiff, and spectators which may include victims, family, public, and the press. The witness will be placed under oath, and all activity in the room recorded. It is also the most scripted aspect of the judicial procedure – a show produced to present the evidence collected by an investigation to a judge and jury, and to provide the defense the opportunity to produce mitigating evidence or discredit the prosecutor's case.

It is always possible to be subjected to a harsh experience as a trial witness. However, for a professional on the stand, this will most likely be the result of a mistake where sloppy procedure has been uncovered by counsel, or counsel using some damaging aspect of the witness's history to discredit or even disallow the testimony. However, short of these pitfalls, the professional may well find handling by counsel at trial to be much less stressful than in deposition or grand jury.

The witness should not be lulled into the attitude that trial is easy and stress free. The audience is the most crucial – the judge and jury. The outcome could be fines, imprisonment, or even death. The witness should use their best communicative ability, be prepared and conversant in the subject matter, and confident to share their full extent of knowledge with the trier of fact.

Testimony begins before you speak. As you enter the courtroom or hearing room, walk with a comfortable, assured, but not arrogant posture and gait. If you are carrying files or exhibits, as you approach the witness chair, place any

evidence out of jurors vision until admitted as evidence. Permitting jurors to see it before its introduced could result in its exclusion by the judge, be grounds for appeal, or even result in a mistrial.

The witness will then be sworn in. Different courts have different methods. You will generally stand facing a clerk or other court officer who will administer the oath. You will raise your right hand, and possibly place your left on a Bible. After the court officer administers the oath, calmly state "I do." If you have religious objections to the manner of the oath, discuss them with your counsel long before court so they may be addressed.

Direct testimony consists of questioning by your counsel; cross-examination is conducted by opposing counsel. When addressed, listen carefully to the question. If you do not understand the question, or if you do not hear it clearly, ask that it be repeated. A yes or no answer may be directed to the questioner; however, any in-depth answer should be directed to the jurors, your audience.

Maintain an even tone of voice when answering. While you do not want to be boring, neither do you want to come across as emotional. Your role is as a professional, providing information with which the trier of fact can determine guilt or innocence. You have no interest in the outcome and your voice and demeanor should reflect that.

As a question is posed to the witness, opposing counsel may object. This objection may be for any of many legal reasons; it is not a personal attack on the witness. When you hear the counsel object to a question posed to you, sit quietly and await the judge's ruling. Some witnesses will try to hurry and answer, however, this provides a hurried, usually incomplete answer. More importantly, it indicates to the jurors *you* have a reason to not await the judge's decision, and thus inserts a doubt in the jurors' minds as to your answer and your impartiality.

Time on the witness stand will vary – a few minutes, a few hours, a few days, depending upon the information you have to convey; its perceived value, and your vulnerability as a witness. The longer the time on the stand, the more difficult it is for the witness – fatigue will affect everyone, and self-doubt may be planted by opposing counsel.

For the professional witness, maintaining composure is multifaceted. First, as a professional, the witness is expected to be nonpartisan with no interest in the outcome of the case. Second, it upsets attempts by counsel to rattle the witness. Finally, maintaining composure, especially under aggressive examination, goes a long way toward making one's reputation as a professional who's counsel will be sought in the future.

Previously, rest and preparation were mentioned; they are important factors toward composure. The witness's emotional state will also figure in. It is difficult to do, but you must learn to shut off any other factors. Domestic problems,

health issues, financial worries, these and any other stressors must be left outside the courtroom.

On the stand, speak clearly, not rapidly, but not so slow you lose your audience's attention or come across as less than professional. If you have a strong accent, whether regional or foreign, attempt to deaden it. You want your audience to easily understand your words, not to have to struggle to hear and comprehend them.

Vocabulary is an important aspect of testimony. As professionals, especially technical professionals, one's vocabulary is heavy with specialized terms, unusual terminology, and stilted language. If possible, refrain from specialized verbiage when testifying. At times, it is mandatory to use technical language. However, it is best to then clarify the statement; "the left scapula – shoulder blade – had a crack along its length." At no time should you permit the stilted language of the job to become the primary language of testimony. The jury, the judge, and counsel need to fully understand the testimony; trying to decipher stilted language distracts from the objective, and may obstruct their comprehension of valuable information.

Questions may not be clearly stated, or may be spoken muffled or not loudly enough for you to properly hear them. Do not assume the content or context of the question; ask counsel to repeat it, or even restate it, so that you may appropriately, accurately, and professionally answer. During this play, you are the star, and you want to ensure your lines are delivered well.

An attorney may attack a witness to damage credibility or rattle the witness's composure. Credibility is best protected by testifying accurately, maintaining impartiality, and being completely forthright with your counsel regarding background and history. Establishing credibility before providing testimony is the key to maintaining it on the stand.

For a variety of reasons, an attorney may choose to attack you in the hope of compromising your self-assurance. It may be that the attorney has a poor case and sees no other path except to denigrate witnesses. The attorney may feel that the witness can be shaken before the jury and this lessens the witness's impact. For some attorneys, it is a standard tactic used on all (or most) witnesses. Other reasons may also prompt counsel to attempt to agitate the witness.

It is not as simple as maintaining the composure you enter the courtroom with. A well-prepared attorney researches the nature of specialty witnesses, and will have accumulated background on common and accepted practices. Good attorneys are skilled practitioners of street psychology, recognizing weaknesses of individuals and able to exploit them. They understand simple techniques to rattle self-assurance and generate self-doubt.

There are a number of tactics commonly used to unsettle the witness which any professional routinely testifying needs to be aware of.

The first step in testimony is to place one's name and title on the record. This will ensure that the record contains the witnesses name, correct spelling, pronunciation, and the title and employer. Throughout direct testimony, counsel will address the witness properly. However, during an antagonistic cross-examination, counsel may mispronounce the name, or address the witness by an incorrect, often lesser, title. These incorrect addresses will continue, and attempt to nudge the witness into overreaction.

The best reaction to this mode of attack is to correct the questioner, one time, casually. If it continues, do not react. Maintain composure; answer the question. A professional response often keys an unintended consequence; the jury and judge will recognize the lawyer's tactic for what it is, lessen counsel's standing while promoting the witness's.

A common tactic during technical or expert testimony is to question the witness in regards to knowledge of specific professional literature. "Are you familiar with...?" "Do you ascribe to...?" The intent is to either draw the witness into a trap of gaining agreement to a written comment contrary to his or her testimony, or to cast doubt on the actual knowledge and capabilities of the witness.

A professional will be well educated, well trained, and well read. When confronted with information taken from a variety of books, journals, or presentations, the answer cannot be so simple as to either recognize or agree with it. Without reference to an actual source with correct context, the witness cannot accurately agree to either recognizing the passage or acceptance of it. Instead, the witness is best served by stating that he or she:

- Has/has not read the mentioned book article etc.
- Finds aspects of most any material to agree with, incorporate, and also to disagree with

This is not to suggest that one should retreat from acknowledging recognition of a work with which one is deeply familiar. This is especially true of works one may use in teaching/training programs, to which one generally refers and is intimately aware of. Such behavior would be disingenuous, destructive to credibility, and potentially perjurious.

A similar tack is to confront the witness with a quote from the witness's writing or teaching. It may be openly done, to trap or contradict the witness, or it may be used without immediate reference, in the hope of either contradicting the witness with his or her own words, or to discredit the witness who fails to recognize his or her own words.

Much of what has just been said applies to this situation. An article may span several hundred to several thousand words; a book several hundred thousand. Certainly, some phrases may become well known – "one small step for man, one giant leap for mankind," is a comment which will long be recognized. However, most writing does not acquire such prominence. Further, even to the writer, most words do not

acquire the uniqueness to key immediate recognition. The writer may recognize style, or they may have a sense of familiarity with the words but not firm recognition.

One of the most important considerations for the witness is that a statement, taken out of context, should not be permitted to be the sole source of a reply. If the witness is to provide comment on the statement, the witness should request to read the material in its full context. If the material sounds familiar, the witness may comment to that extent, again, not commit further unless able to accurately identify the source.

One pitfall presented by counsel is a complex question to which only a simple yes/no answer is requested. This is the “do you still beat your wife” ploy. If counsel insists you answer a question yes/no and you cannot accurately do so, turn to the judge and state “Your Honor, I cannot accurately answer that question in one word, and need to more fully explain.” You have demonstrated respect to the court, especially the judge. The judge, wanting an informed jury, will almost always permit you to explain your answer. If for some reason the judge will not permit a more in-depth answer, then answer yes or no but with the proviso that it is an incomplete answer.

Be wary of comments made outside the hearing of the judge. Especially, when away from the stand, publishing evidence to the jury, it is not unheard of for counsel to ask pointed, offensive questions or even statements, audible only to the witness and jurors. The intent is to goad the witness into an emotional, unprofessional response. No matter how demeaning, do not succumb to temptation; maintain a professional composure, and ignore the question/comment. Counsel will not repeat it. That could bring it to the attention of both opposing counsel who will object, and the judge who may well admonish the attorney for unprofessional activity. The jurors, if they heard it, will respect your ability to remain calm under fire, and will also lose some respect for the questioning counsel.

As noted earlier, these are merely examples of actions counsel may take to subvert your testimony and detract from your standing. By maintaining a professional demeanor, you protect your credibility. If over-the-top, your counsel will object to opposing counsel’s tactics – that is your counsel’s role. Leave it to them to handle.

6.3 Expert Testimony

The judicial system recognizes there are many technical fields outside the knowledge base of average people. Often these fields are needed to explain aspects of the case, or present and analyze evidence for the court. Before testifying, the witnesses will present their credentials to the court, with the judge determining if the individual is competent to present

such testimony to the court. If accepted, the witness is qualified as an expert before the court.

The process of qualifying a witness as an expert is referred to as *voir dire*. During this process, the counsel presenting the witness will question the witness. The questioning will start off with specifics of the witness – name, profession, education, training, experience, related professional activities such as memberships, published works, research, etc. It will then progress into an explanation of the basics of the field of testimony. The opposing counsel may question the witness, possibly probing the witness’s history, inquiring about technical concepts and knowledge, and even be permitted to present hypothetical questions to the witness. Because the witness will be providing testimony considered to be beyond the knowledge base of the members of the court, qualification may be in-depth and intense.

The witness’s individual qualifications will be combed through. The witness must ensure all claimed qualifications – educational, experiential, etc. – are accurate. An individual with much practical experience may have more impact than a highly academically trained individual. For example, Mr. Goodwrench may be more qualified to testify about wear and damage to an automotive system than an automotive engineer. Do not doubt yourself; present yourself to the court and allow the judge to determine if you meet the needs of the case.

It is also important to understand it is not a slight to not be qualified as an expert. Every case has different needs; despite your credentials, you may not fit the needs in a specific case. For example, consider the medical field. All medical doctors complete the same medical school. Advanced training differentiates the psychiatrist from the oncologist from the radiologist from the cardiologist. While each is a medical doctor, a judge may not be willing to permit a psychiatrist to testify to the intricacies of the circulatory system, nor permit a gynecologist to address the sanity issues of a defendant.

Upon completion of *voir dire*, counsel will present the witness to the judge with a request the witness be deemed qualified to provide expert testimony. If the judge certifies the witness capable of providing expert testimony, counsel will then begin examination. During this, questioning may be multifaceted. Since an expert is to provide knowledge beyond that which is common, the attorney will have the witness explain the overall field, his role, its functionality. Once the attorney feels the court has been properly educated, the expert will be directed to comment on the matter at hand. Here, the witness will describe the evidence in detail. Finally, counsel will ask the witness to render an opinion on the evidence. The opinion is the determination the witness came to based upon analysis of the evidence. Legally, this is considered an opinion. In some fields it may be quantified. For example, a fingerprint examiner, based on professional ethics, will only testify to a fingerprint being positively matched

to a source fingerprint. In other fields, such as DNA, the criminalist may testify to a probability of this sample originating from a specific source.

Especially in our American system, expert testimony may result in conflicting testimony, as each side presents experts with differing views. Some fields rarely encountered this – fingerprints, firearms, chemistry. Others, more open to interpretation, commonly encounter it. This is especially true in medicine, such as psychiatrists determining a defendant’s mental standing or pathologists concerning issues such as cardiac damage or pharmacological effects; and engineers assessing the cause of a fall, or literary specialists determining issues of plagiarism or copyright infringement.

Although some fields are open to the potential of differing interpretations of evidence or facts, it is crucial that a professional not skew their opinion to benefit the client, but instead provide an accurate interpretation despite how they affect the client. Ethical professional values ensure one’s reputation is respected and are sought out as an expert witness.

Being an expert witness is very likely the pinnacle of success for a professional. To provide expert testimony means the expert has qualified to explain areas outside the knowledge base of the average individual, interpret facts, and provide his or her opinion on what those facts reveal about an incident or situation.

A different type of hearing you may find yourself involved in is the admissibility hearing. These hearings are concerned with the admissibility of evidence. Most often these hearings apply to new techniques or new types of evidence; however, following the replacement of the broader Frye standard in most jurisdictions by the Daubert standard, all forms of scientific expert opinion have to prove their merit in each jurisdiction adopting Daubert.

An admissibility hearing places the evidence, and its professional acceptance, on trial. In jurisdictions where Frye continues to be the standard, scientific evidence must be found by the court to be “generally accepted” by its relevant scientific community. In the 1995 Daubert decision, the US Supreme Court, refining the meaning of Rule 702 of the Federal Rules of Evidence, establish that

1. The trial judge determines if the expert testimony is based on scientific knowledge
2. The judge must determine if the expert’s testimony is “relevant to the task at hand” and that it rests “on a reliable foundation”
3. A conclusion qualifies as scientific knowledge if it is demonstrated to be sound “scientific methodology” derived from scientific method
4. Scientific methodology means

- (a) Empirical testing
- (b) Subjected to peer review and publication
- (c) Known or potential error rate
- (d) Existence and maintenance of standards and controls
- (e) Degree of acceptance within the relevant scientific community

In turn, Federal Rule 702 was modified to permit testimony only if

1. Testimony is based upon sufficient facts or data
2. The testimony is the product of reliable principles and methods
3. The witness has applied the principles and methods reliably to the facts of the case [2].

Generally, once a court has accepted evidence under its particular admissibility rule, future admissions are usually not subjected to hearing. However, if the jurisdiction changes from Frye to Daubert, if there is new research or other data calling existing techniques into question, if a witness is introducing a new, previously not accepted technique, or if the form of evidence has never been previously produced in court, it will be subject to a hearing. These hearings may be major undertakings, and may overshadow the actual trial. Very often, each side will produce numerous witnesses, one set to establish not only the nature of the evidence, but also to show its acceptance in the field and establish statistical relevance for it. Opposing counsel may counter with witnesses who will attempt to call into question the nature of the evidence, the techniques involved, its acceptance in the field, and its statistical reliability.

An admissibility hearing may be set at a date prior to trial, or will occur during trial, as proffered testimony, i.e., offered and argued outside of the jury. Only upon acceptance by the judge will the jury be permitted to hear the testimony.

Unless in a jurisdiction that is newly adopting the Daubert standard, a witness is most likely to encounter an admissibility hearing if introducing a new technique, or if testifying to a new form of evidence. For example in the 1980s, the introduction of DNA saw all jurisdictions grapple with this new form of personal identification. Since then, rapid developments in its science has seen continued hearings, as ever-changing DNA technologies have had to prove their reliability to the court.

References

1. Richard Tanton, Jury Preconceptions and Their Effect on Expert Scientific Testimony, 24, *J. Forensic Sci.* 691 (1979)
2. http://en.wikipedia.org/wiki/Daubert_standard

7.1 Introduction

A professional will be highly conversant regarding safety factors that affect their field. A medical professional immediately considers bloodborne pathogens; public works personnel confined spaces, structural collapse, and utility hazards. However, whether supporting emergency response or conducting a post-incident inspection, a professional must recognize a wide plethora of hazards and apply appropriate protective measures.

7.2 Bloodborne Pathogens

Prior to the mid-1980s, neither the medical community nor the emergency response fields actively sought protection from pathogenic hazards. Medical personnel wore masks and gloves to protect their patients, not themselves. In those years, thousands of medical professionals and emergency responders were actually exposed or infected with hepatitis, tuberculosis, and myriad other diseases.

An unexpected consequence of the spread of HIV/AIDS in the early 1980s was a new awareness of pathogens; not as a hazard to the patient, but as a threat to the professionals health. Where diseases such as TB and hepatitis are seen as hazards with lifelong consequences, this new virus was recognized as fatal and highly, intimately, communicable. It became a hazard too easily shared with fellow workers and even easier with loved ones.

In reaction to a growing number of occupational infections, the medical emergency response communities developed the concept of universal precautions. As defined in 29 CFR 1910.1030 (OSHA), universal precautions “is an approach to infection control... all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens” [1].

In practice, universal precautions translates to situational awareness, coupled with a sliding scale of physical protection. Normal, daily life, this means maintaining personal hygiene

and washing hands or using waterless hand sanitizers. As the potential for exposure to blood or body fluids increases, so too should the level of protection. Emergency personnel and medical personnel approach all patients with gloved hands. Any significant show of blood will see them adopt disposable masks to protect their mouths and noses, and glasses or goggles to protect their eyes from splashes. Professionals working in extensively contaminated scenes will increase their protection significantly; fire and rescue personnel attempting to extricate victims of massive trauma will be in bunker gear or similar heavy protective clothing, while investigators at locations where copious blood has flowed will dress out in Tyvek coveralls, shoe covers, and wear multiple sets of disposable gloves.

The increased use of protective clothing also brought other knowledge. Increased cases of latex allergy developed a serious chronic condition. It became evident that the allergy developed through exposure to latex, rather than an inherent personal condition. In response, many have adopted the use of nitrile gloves, which does not pose a potential of allergies. An unexpected benefit has been in the strength of gloves; latex gloves are easily shredded in use. Nitrile gloves have shown themselves to be much harder and resilient.

Universal precautions and bloodborne pathogen protections have become second nature to the medical and emergency response communities. However, other professionals who may respond to such events, not routinely familiar with these protective actions, must become conversant in these principles. Operations involving exposure to bloodborne pathogens are governed by OSHA, and professionals should be aware of these rules. Providing personal safety, and protecting friends and family from secondary contamination, should be considered a primary responsibility.

7.3 Protection from Structural Hazards

On April 19, 1994, a nurse, responding to assist in rescue operations at the Murrah Federal Building in Oklahoma City, OK, became the only postblast victim of that infamous act.

Assisting on scene, in the ruins of the building, she was killed in a piece of loose debris fell from an upper floor and struck her in the head.

To people in construction, heavy industry, public works, and utilities, personal protection and safe operating practices are accepted as an integral part. Fire and rescue community, which has evolved over the past 40 years from merely squirting water on flames and prying victims free to be dragged out and transported to the hospital to instead utilizing tactics based upon sound applications of science and engineering principles, has integrated safety precepts into its function, recognizing that an injured or dead rescuer cannot serve its audience.

For many professionals responding to many of these type incidents, this knowledge is not part of their preparation. A medical professional, an environmental scientist, even many from engineering fields, all highly educated and possessive of tremendous technical knowledge, is not trained in many facets of physical safety. However, as many share knowledge with the justice system and visit scenes to obtain better understanding of the case, or become part of the emergency response to incidents, physical safety becomes usually important.

Legally, safety is also regulated under OSHA. Some actions – a police officer, seeing people trapped in a fire, may enter and make a rescue, and neither the officer nor agency held accountable because of the exigencies of the circumstances and it not being within the officers field of training. However, that same officer, conducting an investigation after fire extinguishment, best be properly protected to enter a damaged, weakened structure, and have taken steps to control as many hazards as possible.

Whether involved in rescue, mitigation, investigation, thought must be given to scene conditions. First, what is the status of utilities? Have electrical circuits been cut? For rescue, and possibly mitigation, entry may need to be made into an electrically hazardous scene. If so, all movement must be made with regard to conductors – not just wires, but metal objects and pools or puddles of water. Damaged gas lines and gas valves may turn a location into an explosive inferno. Broken water lines may knock people over, cause physical injury, and drown responders. In addition to those hazards, broken sewage lines may expose responders to a wide variety of toxic and infectious hazards.

Discussion has already been made of hazardous materials. Awareness of hazardous materials must be ongoing. While the major fears concern industrial releases of chemicals and terrorist use of toxic industrial chemicals or improvised chemical agents, all responders must remain vigilant of any release. Consider the not infrequent traffic wreck involving a vehicle driving into a structure. Homes and businesses are laden with hazardous materials – a crushed can of consumer pesticide, or shattered container of toilet bowl cleaner,

presents just as dangerous a situation to the responder encountering it as a major release.

Medical providers are among the most overlooked professionals. While emergency medical services are often located in the fire service, or are often trained up for hazmat response, too little consideration has been given to the remainder of the medical field. As in the 1995 Aum Shuriken sarin attack in Tokyo, history shows us that the overwhelming number of casualties, or frightened nonvictims suffering psychosomatically, will flee the scene prior to the arrival of professional rescue personnel, who will bring decontamination protocols onto the scene. Instead, these victims self-transport by a variety of sites – hospitals, clinics, doctors' offices, fire stations – demanding treatment and contaminating facilities and providers. While hospitals, especially trauma centers that practice for major incidents, will implement security plans to control the influx and either establish decontamination procedures or corral victims until public safety responders can establish decontamination facilities, clinics and offices will be contaminated long before recognizing the hazards.

The potential for this has already been experienced. In a number of cases, usually suicides, victims have been unwittingly transported to emergency rooms. There, it is discovered the victim is off gassing toxic materials, resulting in contaminated medical personnel become medical casualties, ambulances and emergency rooms contained until extensive decontamination can be affected, and a community's normal rhythm seriously impacted by the loss of these emergency facilities.

In situations such as have occurred, little can be done to prevent this. Unless responders have reason to suspect the presence of toxic chemicals, they will treat the incident as a typical suicide attempt, probably as a drug overdose, or even as a "man down" call. Medical facilities take their lead from the field services; without warning, they are not able to defend themselves.

However, in the event of a major incident, with an accidental release or terrorist assault, medical facilities should have a plan. Most locales have emergency notification plan for hospitals for potential mass casualty incidents; these warnings should prompt an appropriate in-house response. Smaller facilities, clinics, and medical offices do not have the benefit of being on a notification list; however, as soon as personal learn of such an incident, whether from news stories or word of mouth, they should have a procedure to execute, to control access to the facility, and ensure it will be able to safely continue to provide its services.

Physical structural damage is the most insidious hazard. Few firefighters and fire investigators have not experienced having a floor collapse under them. Fires, explosions, industrial and construction accidents, motor vehicle wrecks, and activity in old, poorly maintained buildings or sites, expose responders and investigators to obvious and hidden hazards.

Protection takes several tacks. In many situations, OSHA regulations will apply. These regulations establish standards for operations in many arenas – construction, hazardous materials, confined space, high angle, and even general conditions to include office safety. Especially of interest will be standards for construction, high angle, and confined space, as well as the previously discussed hazardous materials.

Professionals who routinely work in those hazards environments should be intimately aware of regulations applicable to them. Others, confronted with an inspection of a potentially hazardous site, should seek professional direction. Public works and fire rescue are each conversant with different aspects of OSHA as regards their operations; they are valuable resources to the casual responder.

Certain items may be maintained in one's professional trousseau if reasonably expecting to respond to such scenes, either as a responder or as an investigational resource. Steel toe boots provide valuable protection to feet and ankles. Long sleeve shirts and long pants, especially of a heavy cotton material, provided a great protection against sharp edges. Generally, leather gloves provide valuable protection to hands especially from sharp and jagged surfaces, and also from unexpected chemical or electrical hazards. Hard hats, or preferably rescue helmets, protect the head. The story is told of two federal agents at the Murrah Federal Building in Oklahoma City, one wearing a hard hat, the other a rescue helmet. A piece of debris struck the agent wearing the rescue helmet; he looked and saw it had also struck the second agent, in the hard hat, who was knocked out by the blow. Eye protection, especially ventilated goggles, protects one's vision from debris and dust. Often an appropriate respirator must be used, to filter dust, contaminants, etc., from the air.

In selecting protective equipment, recognize that a sister agency to OSHA, the National Industrial and Occupational Safety and Health Administration (NIOSH) establishes standards and certifies protective equipment. When selecting regulative apparel, ensure that the item selected are NIOSH certified, and their shelf lives have not expired.

Very often, when supporting a criminal justice or public safety operation, outside professionals may be incorporated into the agency with overall authority. This is a valuable asset to the professional, as it permits them to rely upon that agency's direction and specialized protective equipment support.

Especially since the emergence of HIV as a public health hazard in the 1980s, law-enforcement agencies have become much more aware of occupational safety. This is especially true among investigative units, which cannot claim exigency in entering a physically dangerous location. Today, crime scene units, narcotics investigators, bomb squads, and tactical (SWAT) teams are quite conversant on physical safety issues.

Due to the overall nature of its working environment, the fire service is deeply committed to safety in its workplace.

Firefighters normally work in hazardous conditions – burning structures, collapsed buildings, vehicles, hazardous materials incidents – and apply safety considerations constantly to their work. Their work "uniform" is designed for safety and structurally unstable situations – bunker gear, boots, helmets – while maintaining a wide variety of specialized clothing and apparatus for other situations.

Not always may professionals incorporate into the public safety response. One may be called upon to inspect a situation, especially postpublic safety operations, and only later find one's actions or results incorporated into the investigation or used in court. In these circumstances, the professional becomes individually responsible for safety. Self-education into OSHA and safe response is valuable; query other professionals in construction, utilities, public works, fire rescue, etc., as to their practices. Build a basic response kit, at least with boots, full body cover clothing, adequate gloves, head protection, and comfortable goggles.

When conducting such an inspection, individual awareness is one's most important tool. Research first – if utility hazards are a potential, learn if electricity, water, and sewers have been cut off or diverted. How old, how poorly maintained, is the location? Arm yourself with the most current plans available, if there is any question of becoming disoriented.

Whenever inspecting a potentially hazardous location, have a contact who knows where you will be, and expects you to check in at a set time. Recognize the ubiquitous cell phone is only of value if it can be used; unconscious, trapped with the phone damaged or lost, and a missed check-in will trigger a rescue response.

Consider also having a companion, who will standby outside the site. Some OSHA regulations require "two in/two out" or a standby to coordinate rescue for the entry individual. It may not be required, but may be prudent to consider other situations.

Most importantly, maintain awareness. Look before every step. Does the floor show any sign of this damage? Are there indications of overhead damage that may unleash debris or collapse? Unusual numbers of dead animals or dead vegetation may signal the presence of toxic chemicals. Constantly register and digest all the information and clues the scene gives you. When confronted with a hazard, you must determine if you can safely navigate it or retreat and either declare the scene untenable or obtain adequate and trained assistance to continue.

7.4 Security Issues

Security is a specific form of safety that must be considered. Many places that beckon our skills are not in the best of neighborhoods. Many individuals with whom one must interact are not welcoming a meeting.

Different circumstances dictate various tactics. When participating in a major incident such as a terrorist incident, outside professionals will primarily depend upon law enforcement security. Although one may be licensed for concealed firearms carry, and emotionally may feel more secure if armed, non-law-enforcement personnel should not be armed at these incidents. Quite quickly, a large number of law enforcement officers representing a wide variety of agencies will be on the scene. These varied police responders will not be familiar with all the other police on scene, to be sure the many other responders. They will judge the veracity of other officers on their uniforms, badges, and also nuances of the demeanor police recognize. An armed “civilian” will, at least, trigger an immediate response that will interrupt the more important work at hand. Potentially, it could produce tragic results if the situation escalates as officers confront the armed individual.

However, all participants and the scene should be aware of potential hazards, and communicate them to the appropriate services. First is for unusual individuals at the scene. A major scene may not be “secure” for hours or even days, depending upon the depth of disaster and physical area involved. Rubber neckers, others with no valid purpose, and even criminals and terrorists may infiltrate the scene. Bringing attention of the security forces to all suspicious or strangely behaving individuals will enhance overall security including your own.

Internationally, secondary explosive devices have targeted emergency responders for many years. Eric Rudolph’s bombing campaign across the Southeast between 1996 and 1998 refocused American attention on the hazards of secondary devices. Especially during the early response to an incident, when the situation is most fluid and volatile, it is every responder’s responsibility to be aware of potential secondary devices. Any suspicious circumstances should be considered potentially threatening, reported to incident command to permit bomb disposal to inspect it, and trigger responses to evacuate and quarantine specific area until determined if safe.

The medical field also faces a potential security hazard. Especially in any bombing or chemical assault, the bomber may be among the casualties. This is especially true if the responsible person failed to successfully exit the scene before the device functioned. EMS personnel may discover their patient is suddenly suspect; possibly due to being armed, possibly due to possession of items indicating a role in the incident, even possibly due to behavior, especially attempts to escape from medical transport or to overpower the crew. Similarly, emergency room staff may encounter such signs with a patient already delivered by EMS. If possible, safely separate the person from any weapons or evidence. Obtain security – immediately – to oversee the patient until all

aspects can be investigated. If possible, (physically and legally/ethically) apply restraints to the patient, to ensure safety for practitioners and patients. If no other route is possible, abandoned the patient and ambulance/treatment area, until adequate security personnel can ensure the safety of professionals and patients.

Different security considerations confront these professional conducting a routine job function. Very often, inspections take one into insecure or dangerous neighborhoods. An unoccupied industrial site may have become a magnet for homeless, often emotionally disturbed, individuals. If in a derelict neighborhood it may be prowled by various criminal elements – street gangs, drug dealers, theft rings – who operate in and about the area. Social services, medical, health, and environmental professionals who frequently work in low income neighborhoods find themselves interfacing with a criminal element including gangs and narcotics sales, as well as random drug and alcohol use, and frustrated ill-tempered occupants.

Professionals who routinely work in these areas develop skills in judging conditions and situations, recognizing hazards, handling and defusing situations, and avoiding danger. Additionally, being public employees or contractors, they often have the option of police escort while conducting their business.

The private sector often does not have the opportunity to develop those skills, nor does it have the ability to request police escort standby. In addition, even government professionals do not always have access to law-enforcement support; police resources may be stretched thin, circumstances may unexpectedly change, and alter a formerly stable situation.

First, and obviously, is to research the area well. An Internet search, a few phone calls, a conversation with a beat cop, will all illuminate one about the neighborhood. Second is to map out a safety strategy. Is it wise to individually enter the area? If so, ensure you have communication access. Not just a functioning cell phone, but again, a contact knowledgeable of your schedule and expecting chickens. Plot your movements, including estimated times so your contact can estimate where you should be in the event content is missed.

Maintain awareness. Even the best neighborhood experiences problems. If there are indications of problems, active gangs, stalkers, abort your mission, seek safety, and develop a new strategy.

There is strength in numbers. A single person may be seen as an easy target; two or three become less attractive, especially if their behavior shows a situational awareness and tactical consideration. Often, multiples may have practical purpose, such as in conducting measurements, flagging traffic in conducting road surface examinations, etc., and thus become justifiable from an economic standpoint.

Some may consider carrying of firearms. This is generally not an option for government employees and corporate employees, who must adhere to policies forbidding weapons. If such policies do not affect you, there are still important considerations. First, compliance with laws regulating concealed carry of firearms. The odds are you will not need to employ it; but your presence may attract police who may find you suspicious and conduct a weapons check. Illegal carrying usually exposes one to serious criminal charges.

Perhaps most important in carrying a firearm is knowing you have the emotional capability to use it. A firearm is deadly force; if you cannot employ it in that manner you may be exposing yourself to greater danger, as firearm may be taken from, and used against, yourself. Hand-in-hand with this is training. Along with legal training (often mandatory to obtain a carry permit) is adequate range time to be proficient with a firearm, and preferably some tactical training to provide one every possible advantage is in a situation.

An emerging trend is the embedding of professionals into tactical police operations. Often EMS may be incorporated into SWAT operations. Psychological or psychiatric professionals may be on scene for decision-making support at SWAT and hostage negotiation incidents. Public works and engineering professionals may be on scene to aid tactical personnel in determining technical and safety aspects of breaching operations.

In these situations, law-enforcement assumes complete responsibility for safety and security of outside professionals. As noted regarding response to terroristic incidents, is highly imprudent to come armed. The situations will entail a large number of police officers, often representing multiple agencies. Identification of individuals not immediately recognized as law officers may endanger armed civilians;

police, especially on perimeter security, will be looking for potential hazards to the tactical personnel whose interest is otherwise directed toward the primary threat.

There are exceptions to this. Many tactical units have incorporated their medic support into their entry teams. Some, especially federal teams, have cross trained officers as medics. Many more have trained and certified EMS providers to assume some law enforcement authority, and permit them to be armed members of the entry team, able to protect themselves and also any downed officers or victims encountered during an operation.

Similarly, psychiatrists, psychologists, and attorneys who are closely affiliated with agencies may have completed law enforcement training and will be credentialed members of the agency. These individuals may respond to a scene to provide consultations during an operation; they will usually be well known by at least the primary agency, and will be equipped with identification, including clothing, to permit rapid recognition as police authorities.

Considerations of safety vary among various fields. Crossing over to function within another field, such as criminal justice, is imperative to become conversant with safety as it will affect operating in this realm. Over the past 40 years especially, public safety has recognized the importance of abandoning macho heroics, and incorporated safety-based response principles, as it has recognized that incapacitated responders are of no value for rescue, and indeed become a burden to fellow responders.

Reference

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Domestically, nothing attracts the fourth estate like law-enforcement activity and its aftermath in the courts. This often results in an uncomfortable association between the press, who feel the necessity to publish all details for the edification of the public, and criminal investigative field, which seeks to control information to prevent public panic and aid in filtering corroborating witness and suspect statements. An outside professional, providing services to criminal justice agencies, may be placed in an uncomfortable, perhaps untenable, position if not careful in correspondence with the media.

Although other factors enter into the tenuous relationship between the press and law enforcers, the most relevant is that of maintaining a level of operational security to ensure important aspects of a case remain undisclosed until the case is resolved. Law enforcement and the criminal justice system in general, recognize and appreciate the public's awareness of cases and their progress. Marketing, both maintaining public awareness of ongoing issues and of successfully closed cases, and justifying budgeting, is important. News releases, especially good news, are appreciated at both the organizational and individual level – most members of the system enjoy the satisfaction of public recognition of their efforts.

Investigators, prosecutors, and administrators quickly become familiar with the personalities of the press, especially the local members. They learn who are competent news gatherers, who are trustworthy, which members are out for self-aggrandizement, and which have an ax to grind with the system. Many will maintain friendly contact with those who are most trustworthy, and will also look to highly competent news gatherers, even if they are not likely to enter into quid pro quo arrangements, or even if standoffish in their general relations with law enforcement.

Despite having been used in fiction and entertainment to the point of cliché, it is nonetheless true that investigators hold back many details, aspects of the case, and even operational information to preserve the sanctity of the investigation.

Holding details close to the vest provides several benefits. First, in interrogations, the investigator can judge the veracity of a suspect by the presence of nonpublic details. Second, it provides a filter for appraising incoming information from the general population. Third, especially in heinous offenses, holding back details may protect against vigilante acts by an aroused populace. Finally, withheld details may either frustrate copycat offenders, or permit law enforcement to easily recognize imitators.

How does this affect the outside professional? First, unless under contract to an agency with a nondisclosure clause, under a judicial gag order, or under corporate public information policies, the professional may be susceptible to journalists prying for details on involvement. If the professional speaks openly to the press, the comments may, inadvertently, endanger the investigation, as information may be revealed which law enforcement would maintain as confidential. Ill considered disclosure may harm the professionals relationship with law enforcement and prosecution, in the case at hand and by limiting future cooperation.

What should the professional do? Consult with your investigative or prosecutorial contact. They will recognize whether your speaking to the press may endanger the investigation. Occasionally, they may enthusiastically support your complete cooperation with reporters. Most often, they may ask that certain details be held back, or may suggest a joint interview with them present. At times, they may feel avoidance of the press is the best avenue to take.

If you are providing services to criminal defense counsel, refer any press contact to the attorney. As a contractor to the defendant, you have an ethical obligation to only provide your observations and determinations to the client – the defendant. An ethical violation would expose the professional to significant civil liabilities, as such a breach would seriously violate the client's civil rights. Counsel may see advantage in your cooperation with media; often, the lawyer will want to be present to maintain control over the direction the interview takes.

What of the professional involved in an incident which has not become a criminal justice matter (yet) or whose role in an incident is completely independent of the criminal justice system? First, adhere to any agency or corporate public information policies that apply to you. If your agency or firm requires all media outreach through a designated public information officer, refer the press to this individual. If you do not operate under such policies, or should the public information officer request your participation in a press briefing, remember Sgt. Joe Friday's admonition – "just the facts, ma'am." Provide a factual report of what you know, personally, to be true and correct. No hearsay. No personal opinions. Indeed no professional opinions – while you may be able to come to some conclusions, recognize that early in an incident, there are many aspects that must all be digested before a truly accurate conclusion can be determined.

If you speak to the media, consider also other legal constraints on you. If a medical professional, patient privacy issues are significant. Other professions may have constraints – legal or ethical – on release of certain information. Limit your comments by any such parameters, protecting the rights of those involved and your professional standing.

One other aspect of contact with the press; once you have been sworn in as a witness in trial, you are under a legal constraint to not speak of the case, outside the courtroom, until released by the judge. A judge may take short recesses during testimony or may break for the day during testimony. During any such recess, you are still a sitting witness. You must respectfully demure from any discussion of the case with anyone other than counsel. This is also an important reason to seek release as a witness when testimony is complete, to protect against recriminations should you speak to any one of the case and then find yourself recall to the stand.

Interaction with the press requires consideration and discretion. Neither as individuals nor as representatives of an organization do you want to appear to be hiding behind the "no comment" barrier. As professionals, we want to provide the public with a positive view of our competency and that of our employer. However, we must also be cognizant that our comments may damage an investigation, violate another's rights, and either denigrate our standing before other professionals or expose one to liabilities. Discretion, counsel, and care in choice of spoken words permit us to straddle this chasm.

Appendix A

FEMORS: A Multidisciplinary Statewide Team

In the aftermath of the 9/11 attacks, Florida Gov. Jeb Bush considered the needs of his state, especially as applied to the medical examiner system. The firebombing and collapse of the World Trade Center overwhelmed America's largest medical examiner office. The National Disaster Medical System (NDMS) activated its Disaster Mortuary Operational Response Team (DMORT) to provide support to the crucially important job of recovering remains, providing identification, establishing cause and mechanism of death, and returning the remains to family for disposition.

A number of aspects must be considered. Florida is the fourth most populous state. It contains major tourist attractions – the Orlando entertainment complex, cosmopolitan cities like Miami, hundreds of miles of beaches, dive and sport fishing fleets, and a plethora of retail shopping outlets. Commercially, Florida is a major hub for international trade, especially to the Caribbean and South and Central America. It is the site of growing high tech and bioresearch firms. It is also home to many military facilities, including both CENTCOM and SOCOM. It is a magnet and target for terrorists, as was learned on 9/11.

Additionally, the Florida peninsula hangs into the Atlantic, forming a convenient target for hurricanes, which occasionally rake the state. While not facing the intense tornadoes of the nation's midsection, it is subject to considerable numbers of them annually. Consideration has been made of the potential of a tsunami, especially from seismic activity in the Caribbean basin or even off West Africa.

Consideration also had to be made of the potential of multiple events as demonstrated by 9/11. The Federal DMORT is a finite resource; its regional teams could quickly be fully committed in the event of major, multiple events.

Local emergencies also had to be considered. DMORT is limited to responding to federal events; incidents that do not trigger federal response are not eligible for support, unless local authority is willing to underwrite all its expenses.

Response times have a significant bearing as well. Federal assistance, whether HHS, FEMA, military support, or any other such disaster response, takes time to marshal resources and put them on site, and even longer to be operational. Florida, with its history of hurricanes, has long recognized this and based its disaster response planning on surviving a planned 4-day period as an orphan, until adequate federal resources can arrive to permit local relief.

With all this in mind, the Florida Department of Health (DOH) developed a program, similar to DMORT, to provide support and relief to the state's medical examiner system. Florida's medical examiner (ME) system has functioned since the 1970s to replace the previous coroner system with a professional death investigation program centered about forensic pathologists, most of whom are now forensic pathologists. While the ME Commission is located within the Florida Department of Law Enforcement, and the ME's work closely with local law enforcement, Florida's medical examiners are proud of their professional independence and freedom from outside influence.

Using DMORT as a model, the Department of Health developed the Florida Emergency Mortuary Operations Response System (FEMORS). With FEMORS a wide variety of professionals interact to provide a support network that may be trimmed to meet the needs of local ME, the disaster at hand, and the community.

FEMORS was established as a part of the Florida DOH. The flagship of the Florida University System's medical education programs, the University of Florida's School of Medicine's Department of Pathology, was chosen as a home for FEMORS. Located in Gainesville, Florida, the University

of Florida is somewhat centrally located in Florida's awkward geography. It is also somewhat less of a target for hurricane, the state's greatest natural hazard.

Recruitment efforts saw FEMORS look to a variety of professionals. In order to achieve its goals, it must be capable of recovering the remains, identifying them, establishing the cause and manner of death, and dealing with grieving survivors to both gather identification standards and to notify the same survivors what remains have been identified. Thus, the membership of FEMORS includes

- Forensic pathologists
- Forensic odontologists
- Forensic anthropologists
- Death investigators
- Crime scene investigators
- Fingerprint specialists
- DNA specialists
- Forensic photographers
- Funeral directors and morticians
- Behavioral Health Specialists
- Clergy

However, actual onsite work can include far more encompassing tasks than just these professional positions. A great deal of documentation is produced upon activation thus records management is important. Additionally, a wide variety of equipment is maintained in FEMORS portable morgue, and thus a logistics unit, responsible for setup, resupply, and breakdown, is crucial to operations. Therefore, FEMORS has adopted a philosophy that any member may be tasked to support services wherever in the operation they may be of value.

This management philosophy provides significant benefits. First, every member has the opportunity to become familiar with all other members and their primary functions. Second, manpower can be much more efficiently utilized when personnel are not locked into a single position, but may be assigned to fill in where the need is greatest. Additionally, by exposing members to other specialties than their own, both broaden each member's understanding of various position needs, and bring in outside view into problem solving.

Since FEMORS was established as a disaster response group, it was structured on the ICS model. All members are required to have at least the four basic ICS classes, with all personnel occupying staff and command positions also complete the advanced training. Although most activations of FEMORS would see it functioning under the authority of a district medical examiner's office, it could also find itself called upon to assist a local public health department or law-enforcement agency. With its organization along the incident command framework, it can easily fit under any of these umbrellas to provide seamless support.

One major deviation of FEMORS from the DMORT model was in the recovery of remains. DMORT, as a part of

NDMS, is not closely associated with the FEMA USAR teams; DMORT's mission is to process and identify victims that are delivered to its temporary morgue operations. In Florida, USAR is a function of local fire rescue agencies which are stretched thin in an emergency, especially as they concentrate on life safety and rescue. Thus, FEMORS elected to include recovery as part of its mission, aiding in the relief of local agencies which are facing many operational burdens.

Since it is an on-call, emergency response organization, it cannot justify the budget of a full-time organization. The Department of Health has been very supportive, even in tight economic times, by providing funds to maintain development, training, and equipment. Its equipment cache, for example, must be maintained to permit rapid transport wherever its services may be needed. This entails marshalling equipment by function (i.e., dental, pathology, etc.) to be prepackaged and palletized, and selecting equipment and supplies that require low maintenance, have a stable shelf life, and are hardy enough to face field response conditions. The disaster portable morgue unit (DPMU) contains body and dental X-rays units, photographic equipment, autopsy instruments, fingerprint equipment, and a variety of evidence collection and preservation materials. An expanding array of computers permits the development of a networked data information system allowing multiple stations to enter information on either missing individuals or recovered remains.

The Department of Health also developed an emergency employee program permitting FEMORS personnel to become temporary state employees when activated. This includes a pay scale developed to recognize the variety of job positions, many of which did not formerly appear anywhere in state government. Most importantly, this provides the workers compensation insurance coverage for members exposed to the various dangers that may be encountered on a disaster scene.

FEMORS has not invested extensively in support vehicles. Realizing that every incident is unique, it instead uses contracted transportation services for moving its equipment cache. However, recognizing that every incident will require a command post that should be both insulated from operational traffic and situated so it is not a hindrance to operations, it procured a command center, based upon a 20-ft walk-in trailer. This command trailer contains radio communications systems and computer network servers to allow for full field operations even when all local infrastructures have been compromised. Additionally, one member from the mortuary industry donated a 3/4-ton heavy-duty vehicle with utility body to tow the trailer, which provides versatile storage and transport capabilities for equipment.

FEMORS conducts an annual, 3-day training program for all active members, plus 1-day subspecialty sessions for Odontology and Victim Information Center (VIC) Teams.

FEMORS alternates the general training yearly between classroom sessions and hands-on exercise drills. Training addresses a multitude of subjects including station and task-specific duties, maintaining mental health, ICS updates, bloodborne pathogen updates, terrorism, hazardous materials awareness, etc. The exercises and drills permit the specialists to get hands-on exposure to equipment (which may vary significantly from what they use on their primary jobs), to practice functioning under an incident command system, to evaluate and improve workflow, and in general to acquaint themselves with operational station interactions.

FEMORS' first activation was for Hurricane Charlie in 2004. The news media reported hundreds of fatalities in the area of Punta Gorda, Florida. Law enforcement appealed to the state for support, and FEMORS was deployed. It became a significant learning opportunity. While only four (4) storm-related fatalities were handled in the area, FEMORS reacted well and learned. It worked with DOH to clarify that

FEMORS would normally respond to a request by a district medical examiner unless directed otherwise by the governor. It also established a bifurcated response approach with first a "Go Team" of command personnel for initial assessment of the needs of the event, and then activation of personnel and resources as dictated by the incident. This is indeed a hallmark of FEMORS – it is not locked into a protocol written in stone, but is instead open to re-examination of procedures, equipment, etc., and is willing to modify to meet the lessons it encounters.

FEMORS has since become a model for other areas. Several states, and even one region, have implemented their own mortuary response systems, based upon the FEMORS program. These states have also recognized the limitations of DMORT as well as the potential of events outside the charter of DMORT, and are taking the FEMORS program, customizing it to meet their local needs and concerns, and building their capabilities.

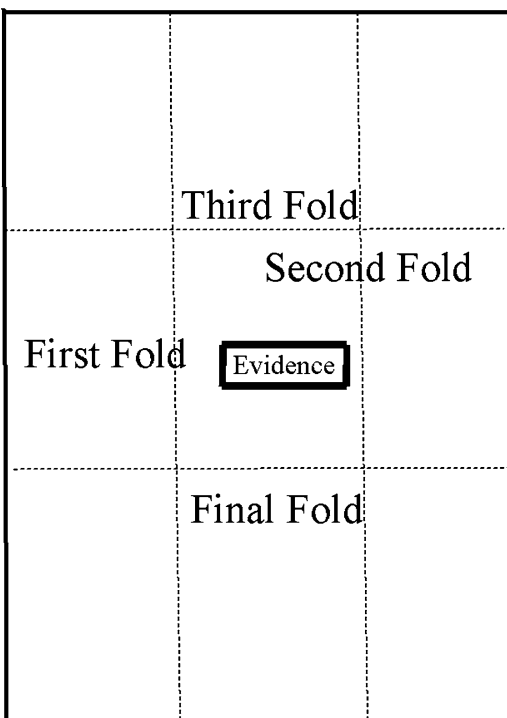
Appendix B

10 Image Tips for the Professional

1. Update Wardrobe
 - Keep current with contemporary styles, without being a slave to fashion or fads. Avoid getting stuck in one era.
 - Buy sturdy, tailored separates to mix and match in neutral solid colors. Complete with a variety of accessories.
 - Be careful not to wear distracting jewelry. You want the focus to be on you, not the jewelry.
 - Women: Shoes should be closed toed with heels no higher than 3 in and worn with flesh tone hosiery. Avoid ornate decorations on shoes or patterned hosiery.
 - Men: Shoes should be polished leather dress shoes and worn with socks that coordinate with trousers.
2. Update Hairstyle and Makeup
 - Keep your hairstyle fresh, natural, and well trimmed.
 - Avoid radical hairstyles or colors.
 - Update your style at least once every other year, making sure it age appropriate and compliments you today. It should suite your lifestyle and personality.
 - Have your hair professionally colored.
 - Women: As you age, adjust your make-up to enhance your features, not disguise them. Focus on one facial feature at a time; such as, lips or eyes.
 - Men: Use powder for photos and TV.
3. Be Well Groomed
 - Treat yourself to a professional manicure and pedicure.
 - Moisturize your hands to keep them soft for hand shaking.
 - Keep unwanted facial and body hair removed.
 - Freshen up throughout the day.
 - Use cologne sparingly.
4. Smile
 - Brush your teeth and tongue regularly.
 - Floss your teeth regularly.
 - Check your breath often.
 - Get regular dental checkups.
 - Keep up with your dental work.
5. Practice Manners and Etiquette
 - Straighten your teeth.
 - Whiten your teeth.
 - Smile from the heart with sincerity.
6. Use Proper Grammar
 - Be polite and gracious.
 - Keep eye contact. Avoid distractions.
 - Give a firm handshake.
 - Be an active listener. See things from others point of view.
 - Do not interrupt when someone is speaking with you.
 - If possible, be politically correct.
 - Be assertive, not aggressive.
7. Voice Control
 - Properly pronounce your words.
 - Speak slowly and clearly.
 - Be careful not to use regional dialect.
 - Avoid slang or inside terminology.
8. Join Toastmasters International
 - Be expressive with your words. Paint a picture.
 - Flex your voice, using both the upper and lower ranges.
 - Use the lower voice range when being authoritative.
 - Use your diaphragm to increase the power of your voice.
9. Volunteer
 - Perfect your public speaking skills.
 - Safe place to explore new concepts and presentations.
 - Receive valuable feedback.
 - Network your business.
10. Have Fun
 - Give back to your community.
 - Show you care.
 - Be part of something bigger than yourself.
 - Leave a legacy.
10. Have Fun
 - Enjoy what you do.
 - Live with passion.
 - Set goals, but be flexible.
 - Learn to laugh at yourself.
 - Never give up

Appendix C Evidence Collection, Preservation, and Marking

Druggist Fold



When folded, secure loose end with piece of tape.
Initial, then place in envelope to seal and mark.

Fig. C.1 Schematic of druggist fold technique

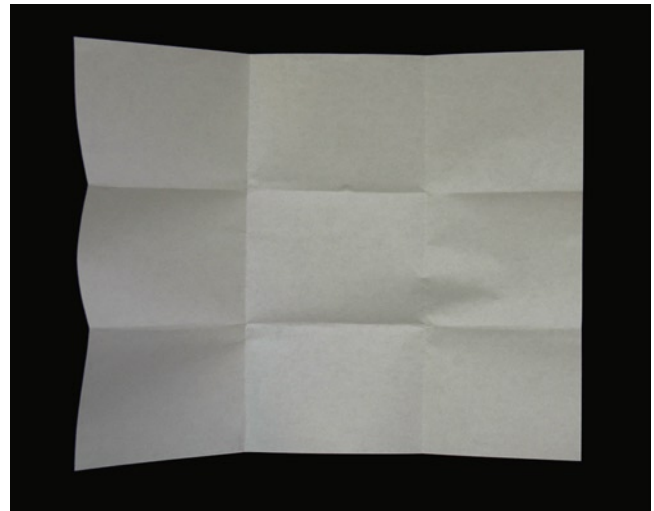


Fig. C.2 Step one, prefolded paper

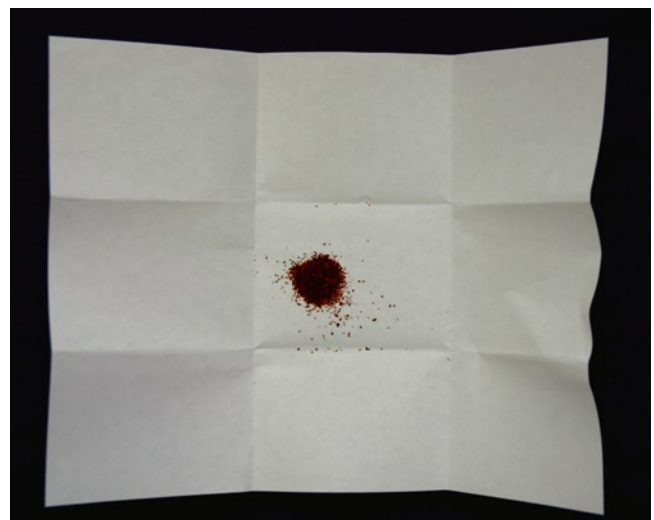


Fig. C.3 Place evidence in center

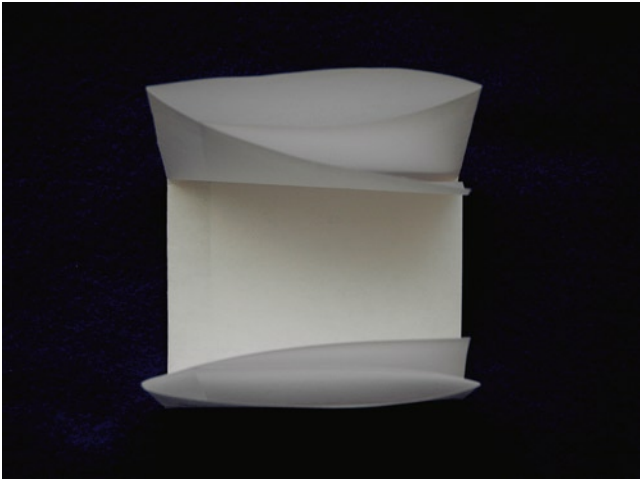


Fig. C.4 Fold paper over evidence

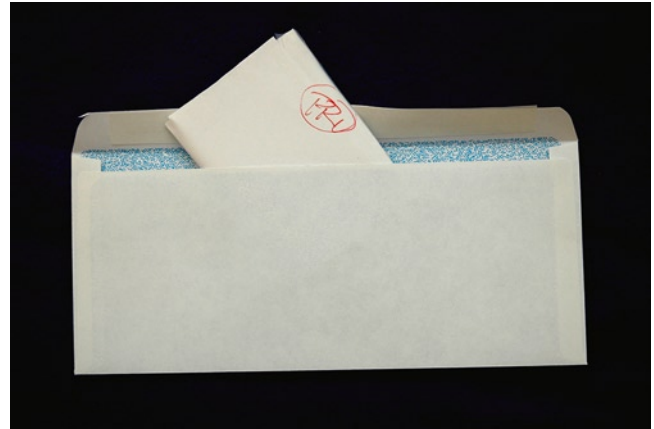


Fig. C.7 Place into envelope



Fig. C.5 Continue folds

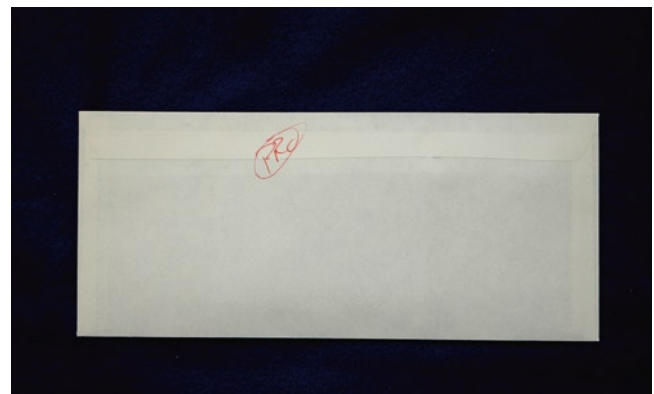


Fig. C.8 Close envelope, tape seal, initial across tape



Fig. C.6 Tape seal folded packet and initial seal

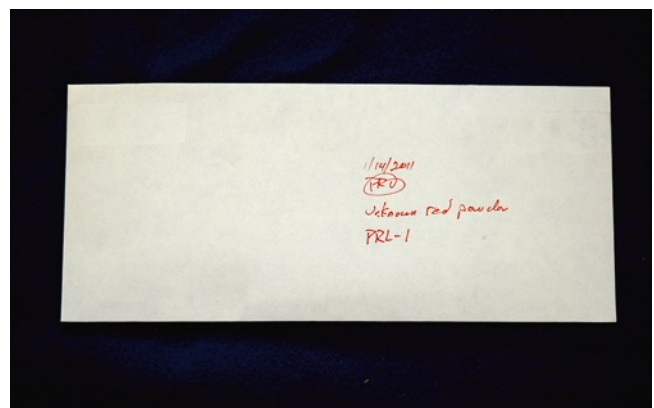


Fig. C.9 Notate appropriate case information on face of envelope

Fig. C.10 Selection of packaging materials. *Clockwise from upper left:* coin envelope; kraft paper bag; biohazardous plastic bag (for dried specimens); slide lock zip top plastic bag; #10 business envelope; preprinted, self-sealing plastic evidence bag; Manila mailing envelope; zip top plastic bag



Fig. C.11 Selection of sealing supplies. *Clockwise from upper left:* frosted desk tape; two type preprinted, heavy plastic evidence tape; clear office type package tape; preprinted frangible evidence tape



Fig. C.12 Common pens and permanent markers will handle almost all marking needs

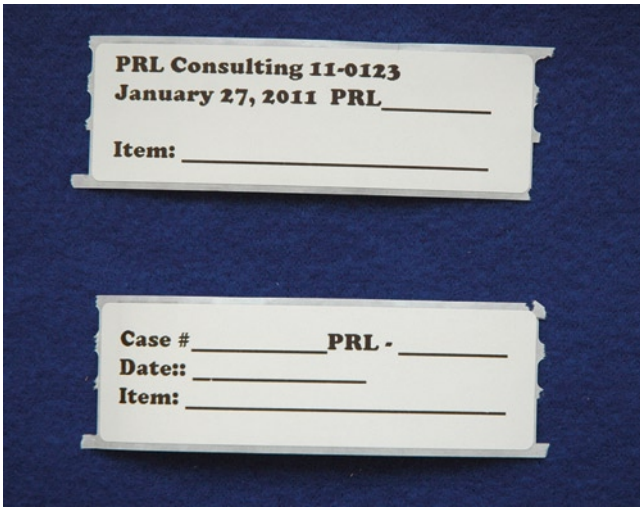


Fig. C.13 Labels may be preprinted, either in blank or custom for the case, on a computer printer

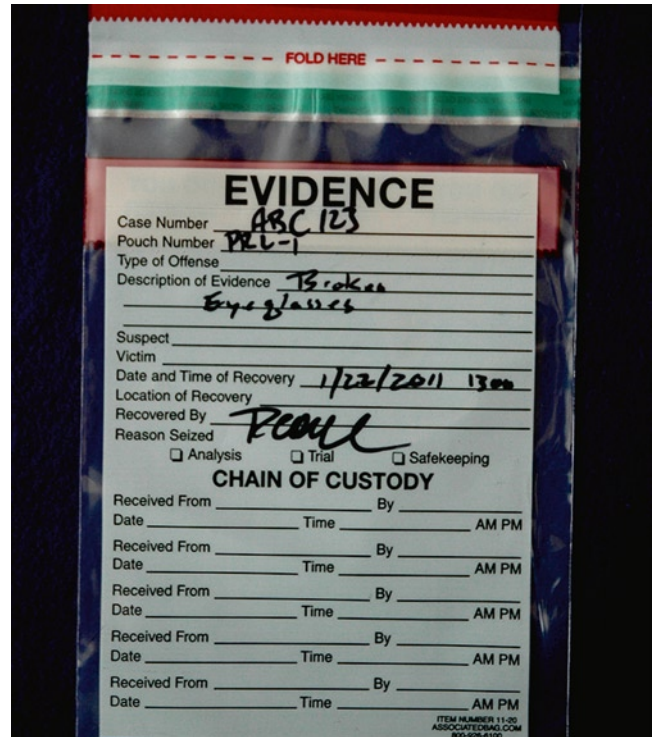


Fig. C.15 Preprinted, self-sealing plastic evidence bag, with a minimum of information completed



Fig. C.14 A preprinted plastic bag for dried biohazardous materials, or for overpacking of appropriate containers of liquid biohazardous materials, and a roll of labels permitting application of warnings to any package



Fig. C.16 Reverse of plastic evidence bag, showing it in sealed condition



Fig. C.17 Close up of closure on plastic evidence bag. Looseness of closure may permit later criticism of integrity of evidence

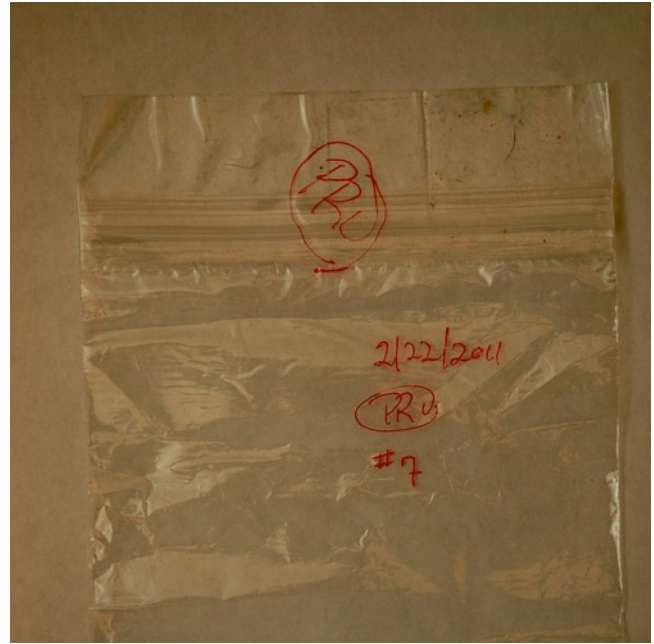


Fig. C.19 Common zip style plastic bag, sealed with office package tape, marked on bag with basic information and with tape sealed across break and bag

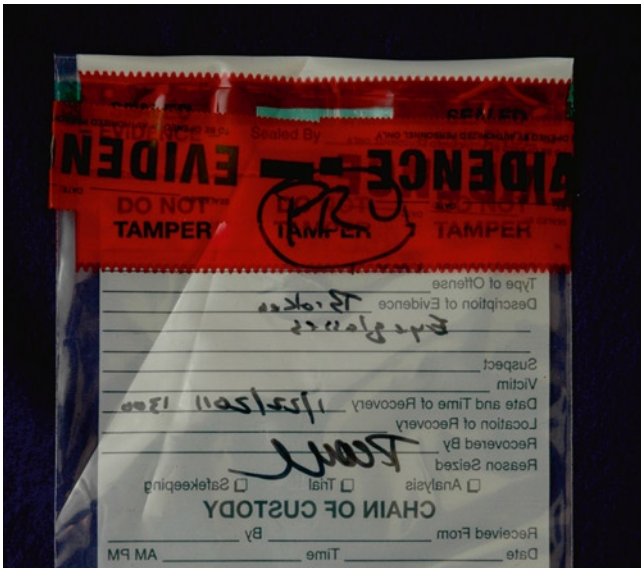


Fig. C.18 Sealed plastic evidence bag with closure oversealed with evidence seal tape and initials across tape break and bag

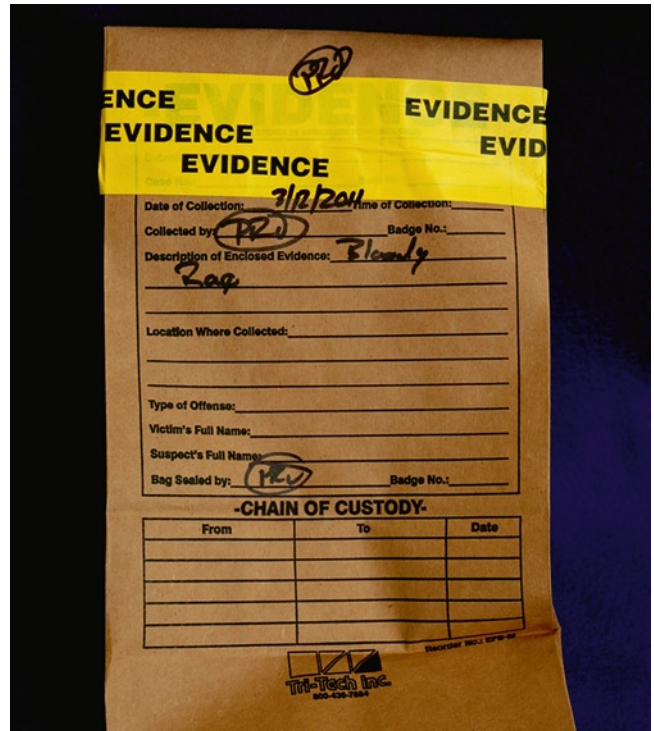


Fig. C.20 Preprinted, kraft paper, evidence bag. Minimum of information is completed on bag. Evidence sealing tape has been wrapped completely about fold over, and initials applied across break in tape and bag

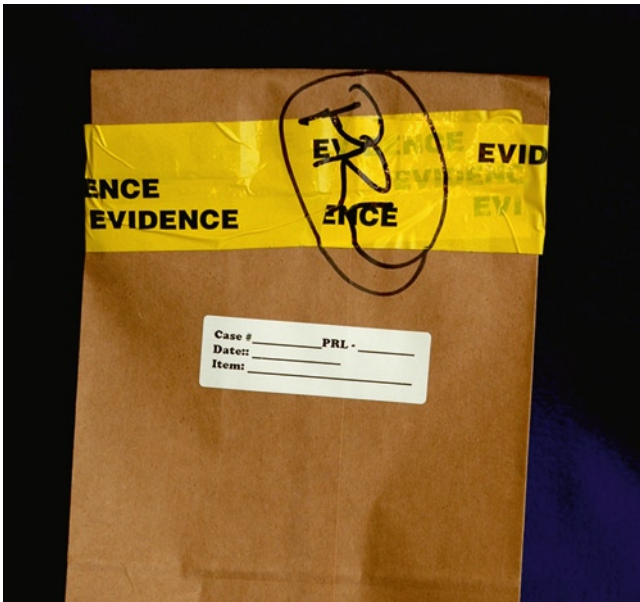


Fig. C.21 A new, grocery type paper bag may be substituted for the preprinted bag. Here a label, printed on an office computer, is used for case related information



Fig. C.23 This series shows safely collecting a sharp item, in this case a knife. A piece of clean cardboard is used to wrap the blade. Once wrapped, it is securely taped in place. This evidence is suspected of bearing blood; the wrapper is marked with a label, as is the paper bag used to finally contain the cardboard sheathed knife



Fig. C.22 This series shows safely collecting a sharp item, in this case a knife. A piece of clean cardboard is used to wrap the blade. Once wrapped, it is securely taped in place. This evidence is suspected of bearing blood; the wrapper is marked with a label, as is the paper bag used to finally contain the cardboard sheathed knife



Fig. C.24 This series shows safely collecting a sharp item, in this case a knife. A piece of clean cardboard is used to wrap the blade. Once wrapped, it is securely taped in place. This evidence is suspected of bearing blood; the wrapper is marked with a label, as is the paper bag used to finally contain the cardboard sheathed knife



Fig. C.25 This series shows safely collecting a sharp item, in this case a knife. A piece of clean cardboard is used to wrap the blade. Once wrapped, it is securely taped in place. This evidence is suspected of bearing blood; the wrapper is marked with a label, as is the paper bag used to finally contain the cardboard sheathed knife

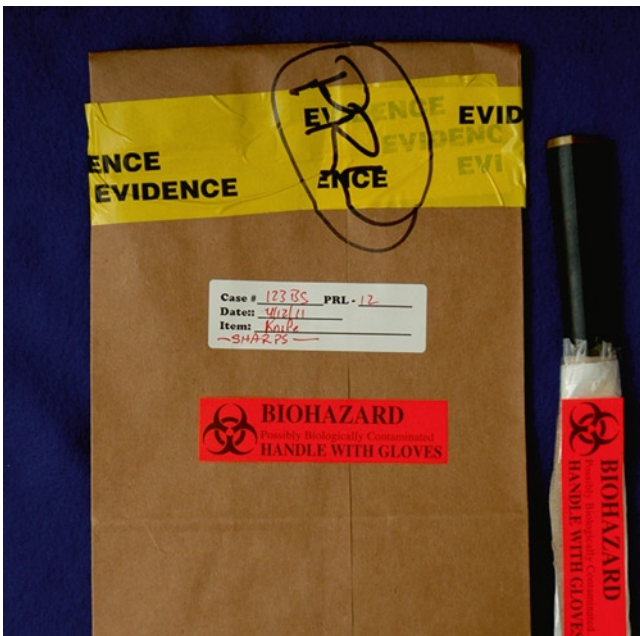


Fig. C.26 This series shows safely collecting a sharp item, in this case a knife. A piece of clean cardboard is used to wrap the blade. Once wrapped, it is securely taped in place. This evidence is suspected of bearing blood; the wrapper is marked with a label, as is the paper bag used to finally contain the cardboard sheathed knife



Fig. C.27 These three illustrations show wrapping the blade of a shovel, which may contain trace evidence or may be the source of tool-marks. Depending on circumstances the cardboard may be marked directly or it may be overpacked in a bag



Fig. C.28 These three illustrations show wrapping the blade of a shovel, which may contain trace evidence or may be the source of tool-marks. Depending on circumstances the cardboard may be marked directly or it may be overpacked in a bag



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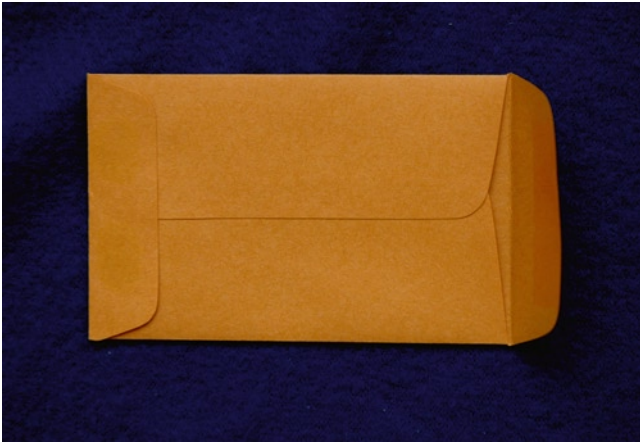


Fig. C.30 A new coin envelope is convenient to store many small items. As shown here, a 360° wrap of tape will firmly seal it, while adequate, basic information may be written on the face of the envelope



Fig. C.31 A new coin envelope is convenient to store many small items. As shown here, a 360° wrap of tape will firmly seal it, while adequate, basic information may be written on the face of the envelope



Fig. C.32 A large, awkward item needs to be wrapped to protect its surfaces of potential evidence clinging to it. Kraft wrapping paper is first used to wrap and envelope it. All loose edges are then securely tape sealed



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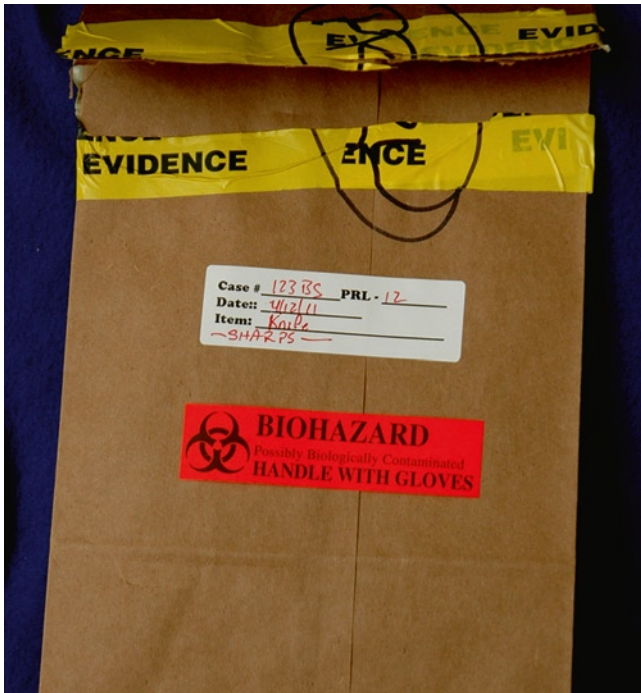


Fig. C.36 If need arises to open secured, sealed evidence, *NEVER* break an existing seal, as has been done here

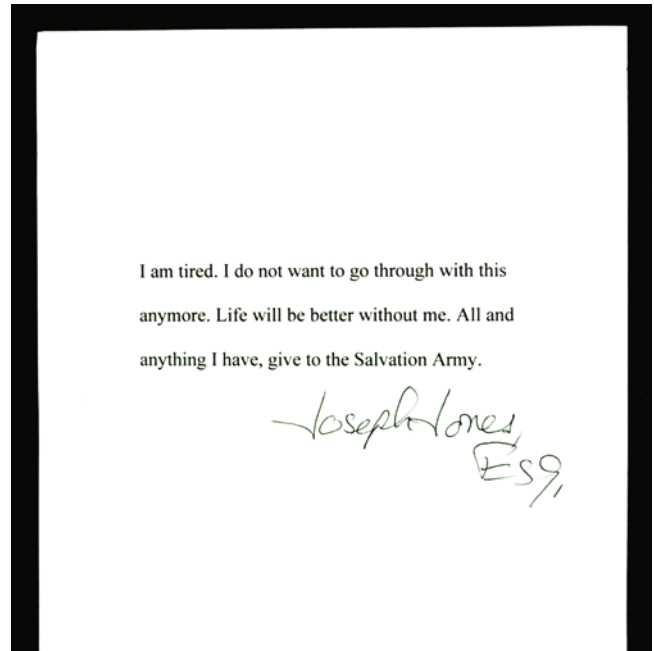


Fig. C.38 Most commonly, documents may be further examined for fingerprints, DNA, and to determine source of handwritten or machine printed writings. If DNA or fingerprints may be a concern, the paper should only be handled by gloved hands or clean forceps. A file folder of pocket (Fig. C.39) may provide adequate field storage of an item until better packaging may be obtained. Many use a letter pad in their field operations. It may provide some field carriage of this evidence. However, do not place the document under the writing pad (Fig. C.40). Writing on the pad may result in impressions being made that have nothing to do with the evidence. Instead, place the item in the pouch of the case, protected from new writing efforts.

The documents are best placed in a clear plastic bag. If a preprinted bag, situate the item so that the written side is toward the unprinted side; this permits the item to be observed and even copied without entering the storage bag

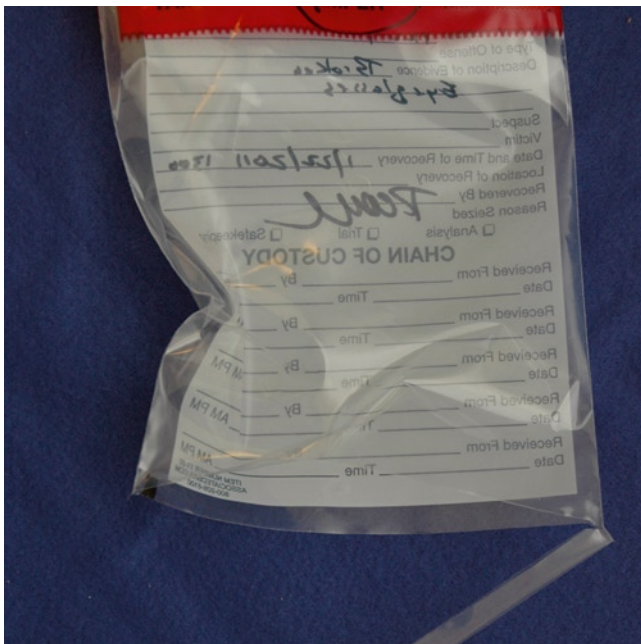


Fig. C.37 To open a sealed evidence container, cut the package in a different location, which will, postinspection, be resealed by you. This shows the preservation of evidence and evidentiary chain, plus permits rapid perusal of all seals to show their integrity

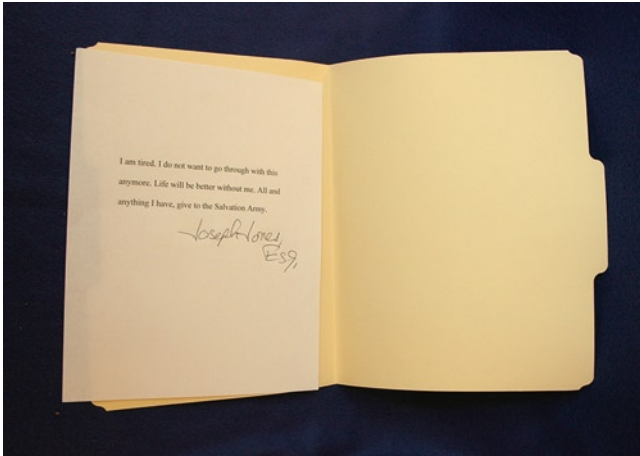


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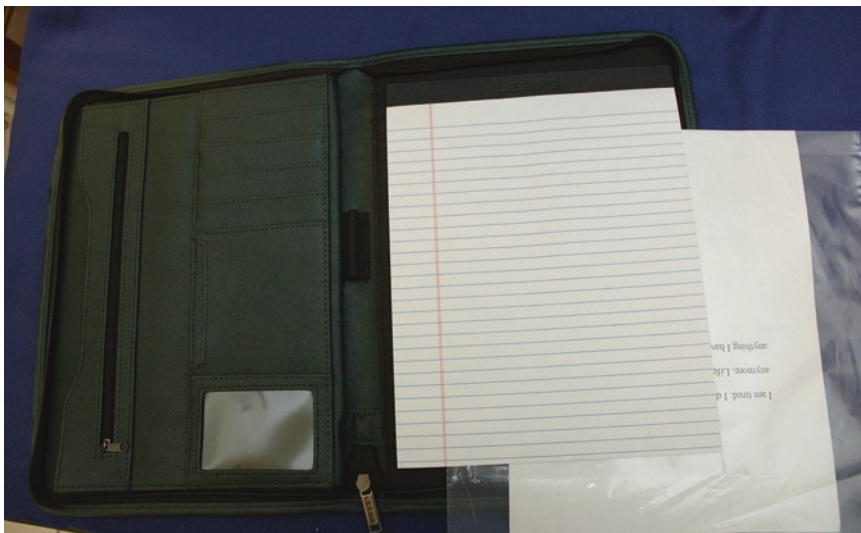


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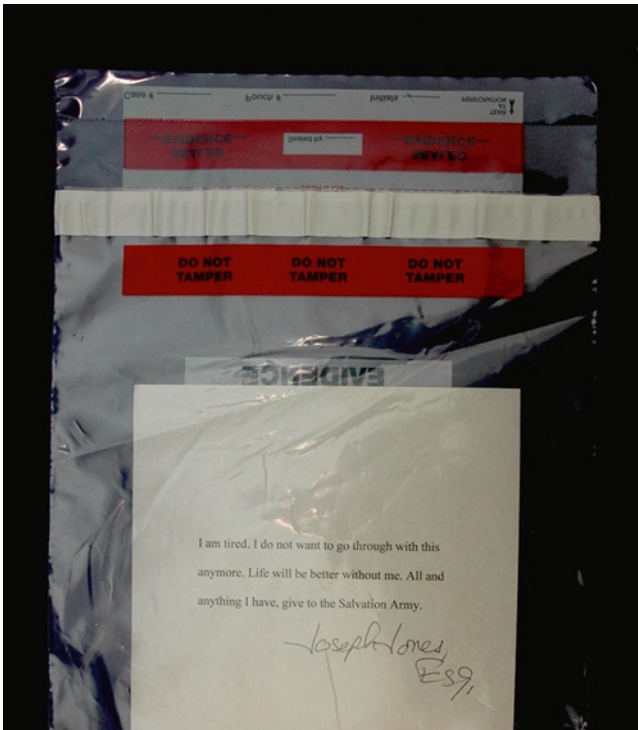


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Fig. C.43 A slide lock zip top plastic bag. A 360° wrap of tape about the closed slide lock will adequately seal the package

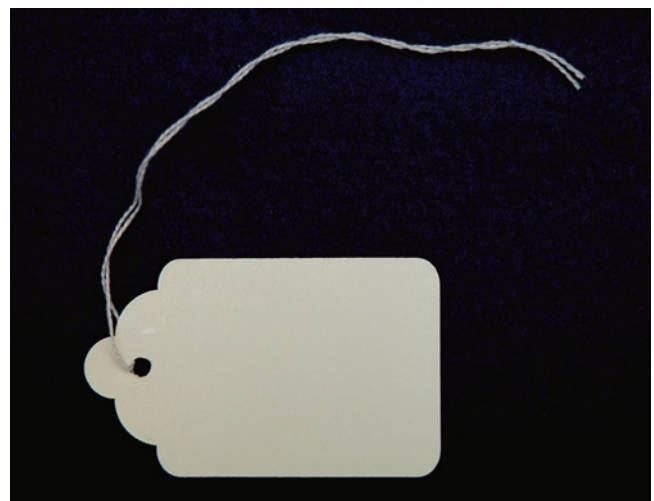


Fig. C.44 String tags are a convenient way to add information to an item that is too large to be conveniently packaged, and which does not require packaging to protect secondary evidence. The tag may be securely attached to the item with appropriate tape



Fig. C.45 String tags are a convenient way to add information to an item that is too large to be conveniently packaged, and which does not require packaging to protect secondary evidence. The tag may be securely attached to the item with appropriate tape



Fig. C.46 Large items of evidence, which do not need to be protected for secondary evidence, lend themselves to direct marking. As in the photos, basic information – case number, item number, initials of the recovering person – are placed on the item using a permanent marker, or sometimes by use of an engraving tool



Fig. C.47 Large items of evidence, which do not need to be protected for secondary evidence, lend themselves to direct marking. As in the photos, basic information – case number, item number, initials of the recovering person – are placed on the item using a permanent marker, or sometimes by use of an engraving tool

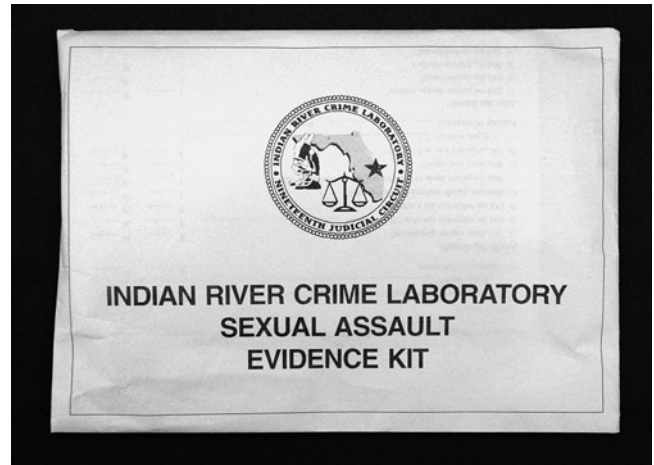


Fig. C.48 A sexual assault evidence kit. This one is custom manufactured for a regional crime laboratory, which then distributes it to the agencies of the locales it serves. These kits come from the manufacturer sealed; the seal should only be broken at the time of use, ensuring its integrity. Moist contents of the kit are envelopes and bags; as each is used, it should be sealed and initialed. Upon completion of the examination, all contents should be returned to the contained (envelope, bag, or box), and information sheets completed and enclosed, and then the container sealed and marked for identification

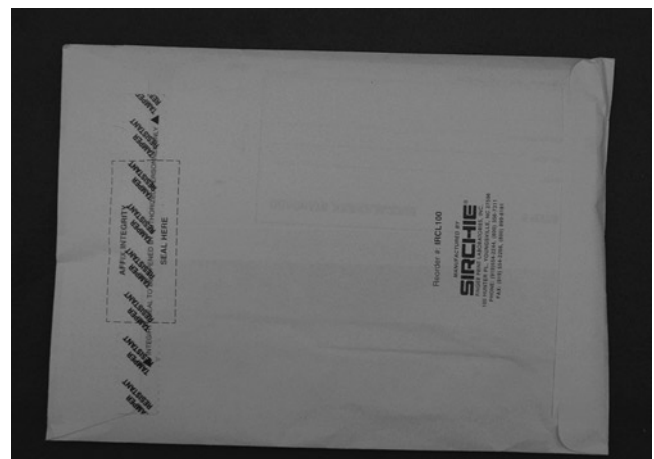


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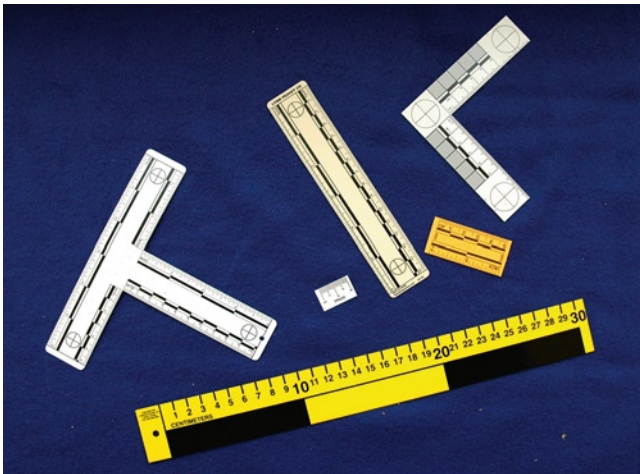
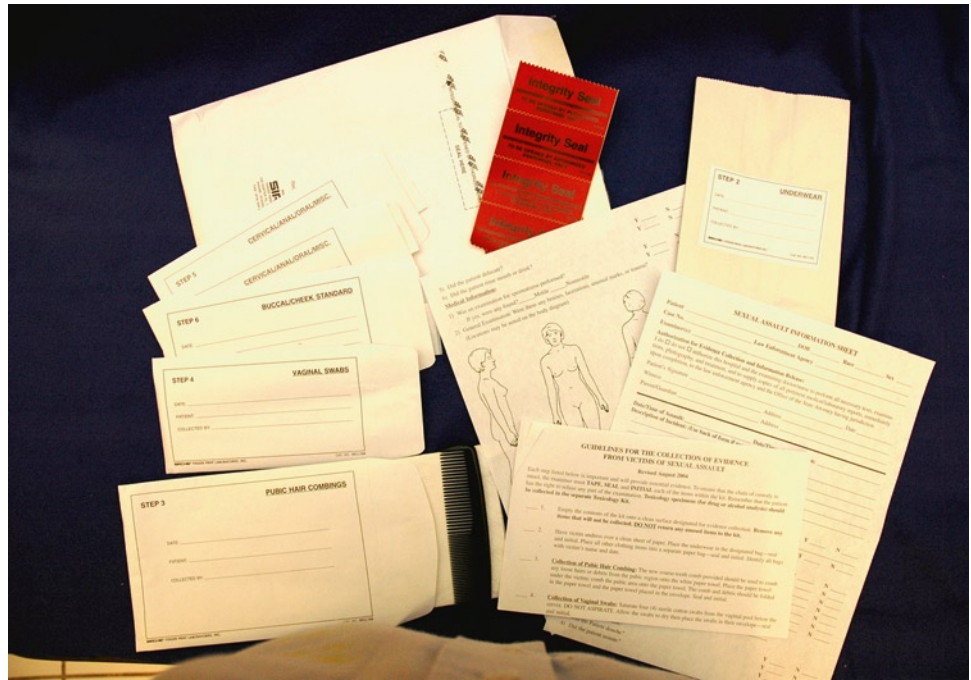


Fig. C.51 A variety of evidence scales
From left: T-type scale; 2 cm adhesive scale; 6 in. English/metric scale; 2 in. English/metric fluorescent scale; L-type scale; At bottom – 12 in. scale, with 4 in. patches to aid in photography



Fig. C.52 Common rulers will often suffice for scales. The *top two* are common advertising rules; at *bottom* is a 6-in., steel, office type ruler

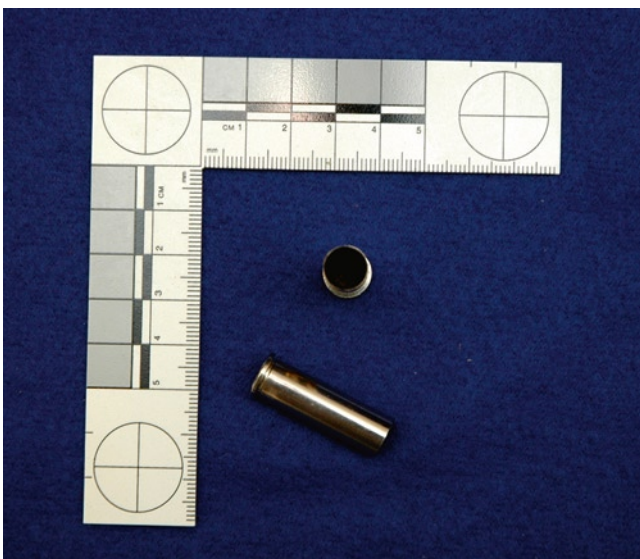


Fig. C.53 L-type scale used in conjunction with two evidential cartridge cases



Fig. C.54 Same scene as Fig. C.53, but omitting the scale. It is important to photograph any item where scale is needed also without, to fend off any claim that the scene was not documented unmolested

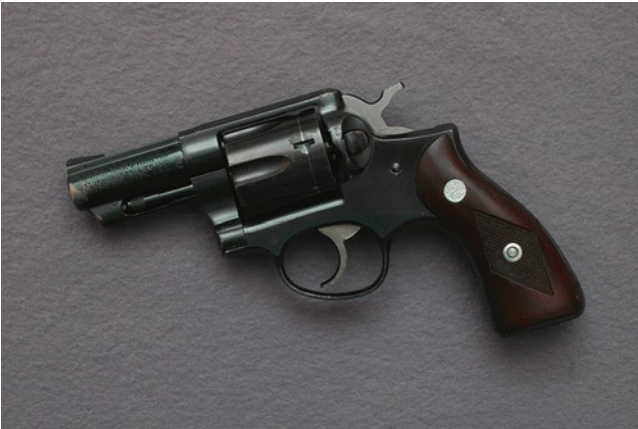


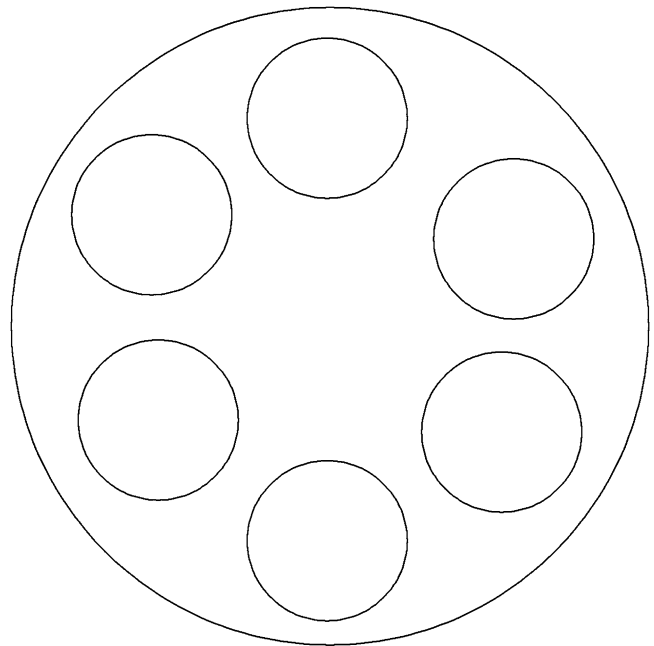
Fig. C.55 A revolver as found



Fig. C.56 The revolver has been made safe, its cylinder emptied of cartridges and visually inspected



Fig. C.57 The revolver has been made safe by passing a cable tie through the barrel and top chamber, and then locking the tie

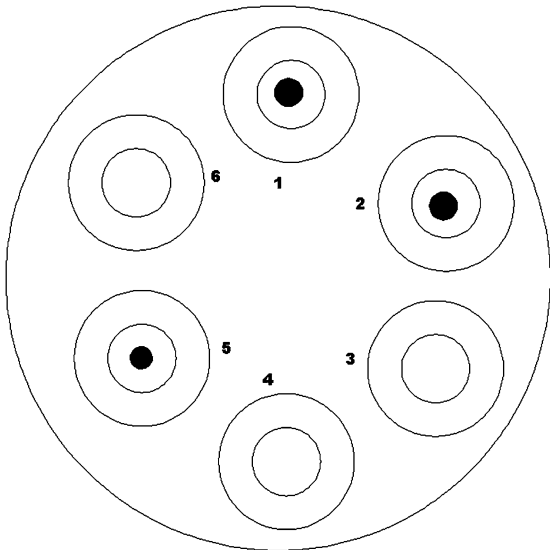


Add arrowhead to indicate rotation

Six shot revolver cylinder chart

Fig. C.58 An example of a revolver cylinder chart; these may be hand drawn or preprinted using a computer's drawing software and printer for revolvers of varying capacity cylinders. The chart is used to document the contents of each chamber as found (fired or unfired, in order from *top*), plus a description of the firearm, and indicate the direction of cylinder rotation

2011-1919PRL
 01212011
 S&W M-15 Cal. .38 Spl. 4" Bbl., Nickel finish revolver



Add arrowhead to indicate rotation



- 1 - R-P 38SPL fired empty case
- 2 - R-P 38SPL fired empty case
- 3 - R-P 38SPL jacketed hollow point
- 4 - R-P 38SPL jacketed hollow point
- 5 - R-P 38SPL jacketed hollow point misfire
- 6 - empty chamber

Six shot revolver cylinder chart

Fig. C.59 An example of the completed revolver chart



Fig. C.61 The pistol made safe – magazine removed, slide locked back, with visual verification of an empty chamber



Fig. C.60 A semi-automatic pistol as found



Fig. C.62 A cable tie has been passed from the muzzle, down the barrel, and out the chamber, and then locked, ensuring safety of the firearm.

Note that, if the firearm may have secondary evidence (fingerprints, DNA, pocket lint, etc.) it will always be packaged, in a paper bag or often a box designed for storage of firearms. If the firearm is or may be contaminated with biohazardous material, it should be packaged and marked as contaminated for safety. Some agencies prefer that firearms with no secondary evidence or contamination remain unpackaged and only tagged. Many now use specific firearms evidence boxes for all firearms to simplify the storage of evidence



Fig. C.63 Some evidence must be preserved until a properly trained and equipped investigator can process it further. Shoe and tire impressions are fragile – wind, rain, and careless feet can easily destroy them. Here, a *box top* has been used to cover a shoe impression until it can be evaluated, documented, and otherwise collected



Fig. C.65 Very often, evidence such as this transfer may not be able to be collected in the field. In this case, it has been protected by taping a sheet of paper (a flat bag, sheet of plastic, etc., may suffice) permitting the vehicle to be transported to a secure site accessible to investigators



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About the Author

Paul R. Laska received a B.S. in criminology from the Florida State University in 1973. In 1974, he began his professional career with the Belle Glade Police Department in Florida as an Identification Officer. In 1977, he joined Florida's Martin County Sheriff's Office as a Detective in the Crime Scene Unit. Over the next 25 years, he served in that position, as full time Identification Officer (fingerprint specialist), as supervisor of the Forensic Science and Records Units, and as the Environmental Investigator. Additionally, in 1979 he attended the Hazardous Devices School and returned to establish the Bomb Disposal Team for the Sheriff's Office, serving as its commander until his retirement.

Beginning in 1979, he also served as an instructor, being an adjunct instructor with the Indian River Community College (late Indian River State College) in Ft. Pierce, FL, and the Florida Institute of Technology Underwater

Technology Program in Jensen Beach, FL. He also served as an in-service instructor for many law enforcement and fire agencies on the Treasure Coast and Palm Beaches of Florida. He also provided training to a variety of private and public concerns in the area.

Since his retirement from public service, he has continued to provide services as a consultant to the legal profession in fingerprint identification, crime scene investigation, firearms technology and identification, and bomb/explosives technology. Additionally, he regularly publishes in a variety of public safety oriented magazines and journals. He also serves as an instructor with a variety of programs, including the U.S. Department of State Anti-Terrorism Assistance Program, University of South Florida Center for Biological Defense, South Florida UASI, and New Mexico Tech Energetic Materials Research and Testing Center.

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