LAW ENFORCEMENT MANUAL FOR
THE RECOVERY OF HUMAN REMAINS

(Revised 09/2013)

BY

HAYDEN B. BALDWIN
DEDICATION

This manual is dedicated to my loving wife, Carla, to whom I owe more than I'll ever be able to repay and to my mentor, Dr. Clyde Collins Snow, Forensic Anthropologist, teacher, and friend.
The author of this manual has been employed by the Illinois State Police since 1970 and has held several positions with that agency. He is now Region I supervisor for the Bureau of Crime Scene Services. He has instructed and lectured at numerous seminars in the United States. His training in the recovery of human remains is from research and actual case work. He is recognized for his expertise in the recovery of human remains by local, county, state, and federal law enforcement agencies.

(Retired in 1998)

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This manual is not sanctioned by the Illinois State Police or the Bureau of Crime Scene Services. The opinions in this manual are solely of the author.
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THE RECOVERY OF HUMAN REMAINS
BACK TO BASICS

This is an attempt to introduce to law enforcement officers the basic techniques in the recovery of human remains. This manual is not all inclusive but may give you an insight into the different possibilities in the recovery of human remains. We will be discussing physical evidence, testimonial evidence, search techniques, surface recoveries, excavations and exhumations.

Recovery of human remains is the same as any other death investigation. You will have the basic four types of deaths; homicide, suicide, accidental, and natural. The only difference between "Normal" death investigations and recovery scenes is the amount of decomposition, the disarticulation of the bones, and the unusual environments we find ourselves in. As in all death investigations, recovery of human remains is a team effort; no one person could do a complete investigation by himself. It requires the combined talents of several people, each a specialist in his own area of expertise.

In any death investigation, all law enforcement officials involved have specific responsibilities; attempts to meet these responsibilities often impact the efforts of others. Although a crime scene can be handled in numerous ways and each case may dictate a different approach, experience has proved certain guidelines to be advantageous. The following are suggestions for consideration in death investigations:
FIRST OFFICER ON THE SCENE
a. Render aid if needed.
b. Protect the scene; this includes prevention of possible contamination by keeping other police personnel from entering the crime scene.
c. Secure witnesses and keep them separated.
d. Take immediate notes because the scene will continually change.
e. Request the services of a crime scene technician, the coroner, and investigators. If required by policy, notify the states attorney's office.
f. Condense all facts into a comprehensive report.

CRIME SCENE TECHNICIAN
a. Locate and identify physical evidence at the scene.
b. Process the crime scene, attend the autopsy, and take custody of all physical evidence.
c. Package and transport all physical evidence to the appropriate crime laboratory.
d. Prepare a comprehensive report.

CORONER/MEDICAL EXAMINER
a. Give direction to the pathologist.
b. Determine the cause and manner of death. Request assistance from the crime scene technician if needed.
c. Establish a close line of communication between the coroners office, crime scene personnel, and investigators.
PATHOLOGIST

a. Obtain all physical evidence from the victim's body. If all pertinent information and evidence are recovered from the body, there should be no need to exhume the body. Items such as a knife tip broken off inside the body can be used for laboratory comparison if the knife is recovered.

b. Communicate with the coroner and the crime scene personnel at the autopsy.

INVESTIGATOR

a. Gather all possible information from the first officer on the scene, any witnesses, the crime scene technician, the pathologist and the coroner.

b. Authorize one person to release information and maintain continuity throughout the investigation. Information released without thought to investigative leads or case prosecution may jeopardize successful resolution and prosecution of the case.

c. With the states attorney's office, determine the value of lead information and the direction of the investigation. The states attorney's office and the investigator will be charged with the long term aspect of the investigation and the ultimate prosecution of the case.

Thorough investigation of a crime must be a joint effort, otherwise the citizens are underserved. If each individual completes his portion of the process, the outcome will yield the most effective results.
In processing a "normal" death investigation we are concerned with the primary and secondary area of the crime scene. The primary area is where the body is located and the secondary area is the area leading to the crime scene. For instance if we have a body in the middle of a room our primary area of the crime scene is in that room and is well defined for us by the walls, floors, and ceiling. The secondary area is all avenues to the room including the outside yard. How did the suspect enter and leave the scene? Did he drive to the scene? These are all secondary areas of the crime scene.

Now let's change this crime scene to an outdoor scene where the body is laying in an open field. What are the dimensions of your scene? This is where we all have trouble. The primary scene is an area
closest to the body and the secondary area is the surrounding access area.
The body didn't just fall out of the sky and land there. Someone put the
body there by vehicle or carried it to that spot. Therefore you have prime
physical evidence leading up to the body, i.e., tire tracks, footwear prints,
drag marks, etc.

Unfortunately whenever there is a body in a field or any open space we as
officers tend to walk in a straight line right to the body, ignoring the
evidence on our way. Why? Basically we lose sight of the lack of
dimensions to the scene. Inside a building we are alright but in open
areas we can't seem to conceive that there are dimensions to this outdoor
scene. Stop, look, and walk around the field in a least likely point of
entry to the body. On the way open your eyes and look for evidence, it's
going to be there!
Remember in all crime scenes there are two types of evidence, physical and testimonial. Physical evidence is anything that you can hold in your hand and testimonial evidence is what you can testify to in the reconstruction of the crime scene. One form of evidence is just as important as the other.

Why do we process death investigation scenes? Mainly to prove if a crime was committed and who committed the crime. The added problem that arises with the recovery of human remains is determining the identity of the deceased. Current procedures for identifying the deceased are by finger, palm or foot prints, dental charts and x-rays, comparison x-rays of old injuries and deformities of the deceased, measurement of the bones of the skeleton to determine approximate age, weight and height, existence of physical deformities such as missing fingers, etc., and tattoos. Last but not least, facial reconstruction by a forensic sculptor or a forensic artist can be attempted. Of course you could get lucky and find the victim's personal identification on the body.

What are the normal procedures in processing a death investigation?
The normal chain is as follows:

1. **INTERVIEW**: Gather and verify information.
2. **EXAMINE**: Examine and evaluate the crime scene.
3. **PHOTOGRAPH**: Photograph the crime scene.
4. **SKETCH**: Sketch the crime scene.
5. **PROCESS**: Process the crime scene.
The recovery of human remains is no different than any other crime scene investigation. You still have a scene, a victim and a suspect. As at any other scene, you are still going to examine and process the scene for physical evidence.

What is physical evidence? The best definition that I have found is:

"Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as 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; it cannot be wholly absent, only its interpretation can err. Only human failure to find it, study and understand it, can diminish its value."

(Harris vs. United States, 331 U.S. 145, 1947)

The only thing that has changed since 1947 is the interpretation of the evidence. We can do more indepth analysis of the evidence now than we ever could before. We have better equipment to recover and analyze the evidence and better trained crime scene investigators to collect and preserve the evidence.
What types of physical evidence will you find at a recovery site? The possibilities are endless. Of course factors that change or diminish the value of the evidence are time, weather conditions, and contamination by others. But these factors are the same for any crime scene!!!

The point I am trying to make here is that surface recoveries and excavations are relatively simple. They are processed as any other crime scene. You are still looking for physical and testimonial evidence. The same processing techniques are used - interview, examine, photograph, sketch, and process. As at any other scene that you process, you should not let anyone rush you into doing a sloppy or inadequate job. This is one of the few cases that you will process in which time is on your side!

SEARCH TECHNIQUES FOR HUMAN REMAINS

Of course the primary event in the recovery of human remains is finding the body. Most remains are found by accident. In the Midwest a majority of the remains are found in the fall or spring by hunters, farmers working their field, or others such as; hikers in the woods and construction workers performing excavations at job sites. Sometimes remains will be found incident to searching an area specified by investigative leads or informants. Once the remains are found your primary area of recovery is now defined, but don't forget the secondary area of your crime scene.
Prior to getting started on a search area you must verify the information you have received. Nothing will make the bosses happier than going on a wild goose chase, depleting money and manpower.

Once the search area is defined and the information is verified you must evaluate the area for manpower and equipment needs. A team must be established. The team should have a "boss", searchers, and crime scene specialists to handle the photography, sketching, collection of evidence and the recovery of the remains. You may want to have a detailed map of the area in question and aerial photos to show the layout of the search scene. I would suggest that someone who is familiar with the terrain also be contacted to provide a little insight concerning the terrain and any problems that you may encounter, including any changes made to the area which are not documented.

Comfort conditions must also be taken into account by the person in charge of the search or recovery site. By this I mean that you must include in your planning weather conditions, food for the workers, bathroom facilities, and plenty of liquids to drink and water for cleaning up.

Once the area has been evaluated and a team is established you must inform the team of the object of the search and how to look for it. Do not assume that they know what to do. Have a meeting prior to the search to explain in detail the objective of the search.
The normal field search methods are used for all outdoor crime scenes. The following four methods, or a variation of them, are used in searching outdoor areas for the recovery of human remains.

**CIRCLE** - consists of a center stake with a rope tied to it with the searchers at five feet intervals circling around the center in a straight line. This method is not used that often but is effective with large areas and several searchers.

**GRID** - the area is sectioned off in a grid with the searchers in one area of the grid at a time. This method is normally used when the area is quite large, such as several acres of land. Each area of the grid is then searched by circle, strip, or zone.
**STRIP** - consists of a line of searchers standing approximately an arms length away from each other in a straight line walking through the area to be searched. Using barrier tape to define the strips will help.

**ZONE** - similar to the grid search except that it is normally used in smaller areas to be searched or a portion of the grid. The zone is then searched with the strip method.

Of course the method that you select will depend entirely on the terrain to be searched and the amount of manpower available. Always search the area twice but not by the same person. Another person may find what the first person missed.
When using any of the search techniques, if one of the searchers finds an item the whole team stops until the item found can be photographed, its location sketched, then collected and marked for further examination later. After the item is marked or collected the searchers continue until another item is located. This process is continued until the entire area to be searched is completed.

Another method that you may consider is use of the trained canine. Some dogs are trained for recovering items of evidence in fields, while others are trained for finding deceased bodies. There are different methods used in the training of these dogs and you will need to check with your local canine unit to ascertain if they can perform this function for you. The canine must be specifically trained for the search and recovery of human remains. Canine crossed trained for drugs, arsons, bombs, and other items of evidence are not as productive as canine specifically trained for recovery sights.

If you are looking for buried remains use the same search methods as for surface recoveries but look for different search indicators. In this type of search it is imperative that the searchers are educated in the different types of burial indicators that may be found. Because of the time and weather elements burial indicators may be difficult to find. These indicators will vary due to the type of terrain that you are searching. Remember: you may be looking for pieces of a body, which could mean multiple burial sites, rather than one large burial site.
Some of the indicators of a burial site are disturbed vegetation, soil compaction, and soil disturbance. You may observe one or more of these indicators at the same sight.

**DISTURBED VEGETATION** - Whenever a hole is dug in the ground, the vegetation in and around the hole is disturbed. This vegetation will no longer remain as it originally was. It may be upside down with the roots showing or just brown in color from being uprooted. Adjoining areas, disturbed during digging, will also show signs of vegetation disturbance. In a wooded area a small clearing in the trees may indicate a burial site.
SOIL COMPACTION - The natural decomposition of the buried remains will leave a void in the soil. Through time and rain the soil above the remains will sink to fill the void, thus forming a depression in the surface above the body. A secondary depression may also be noted inside the primary depression. This is caused by the abdominal cavity deteriorating. Again depending on time and weather factors this depression may have new vegetation or even trees growing from it. Of course this new vegetation may also be an indicator because the new growth will not be as mature as growth in the surrounding area. There may also be visible cracks in the soil outlining the actual grave. These cracks are made when the disturbed soil shrinks from the undisturbed soil due to the depression in the ground.

Animals can cause similar compaction by burrowing holes for nests or looking for food. Other decomposing material will also cause the same depressions. However, a two foot by six foot area of compaction will usually indicate something large buried.
SOIL DISTURBANCE - Whenever a grave is dug in the ground the layers of soil are disturbed. This is because the soil under the ground is set into layers. Some areas will have very shallow layers or multiple layers within a very few inches from the surface while others will have layers several feet thick. While digging a hole you will note that there are different colors of soil at the different depths. These different colors represent the different layers of soil. For instance, black soil might be found from the surface to a depth of about four inches, a lighter color of soil might follow for several inches with clay below that. All these layers may repeat themselves or be in different orders. However, once the layers are disturbed no amount of effort and precision can replace them exactly the way mother nature put them there. Digging not only disturbs the layers or soil in the grave but it also disturbs the surface soil around the grave. There will always be some residue left after refilling a hole. The residue will be a different color than the surrounding surface soil.
Some special problem areas for visual indicators are sandy beaches, desert areas, and cultivated land. You probably will not find any visual indicators on the surface of these areas. Locating a burial site in these areas requires a different approach to the problem. Several methods are currently being explored:

**INFRARED PHOTOGRAPHY** - This method uses the difference in temperature between the buried body and the temperature of the soil around or on top of it. Infrared may also indicate the difference in temperature of disturbed and undisturbed soil. I have not had a great deal of success with this method.

**METHANE DETECTOR** - Any organic object that is decomposing will produce methane gasses. Unfortunately the decomposing item may be a tree stump, vegetation, an animal, or garbage. Therefore this method has a large drawback and it is seldom used in the field.

**AERIAL PHOTOGRAPHY** - The comparison of aerial photographs of the suspected area taken over a period of years might disclose a possible burial site. The photos could show the vegetation disturbance occurring when a body is buried. These photographs are usually taken for tax assessment purposes and are available for several years. The aerial photographs will also show what new construction has taken place during the time period in question.

**PROBE** - In using this method a four foot metal rod approximately 3/8"
in diameter with a 12" handle forming a "T" is poked into the ground. In pushing the probe into the ground you will feel a difference in the pressure needed to push the probe into undisturbed and disturbed soil. One must acquire a "feel" for this by sampling the ground in the area. When using the probe the searcher should poke the ground approximately every foot in the zone. This method requires the searcher to use extreme caution to avoid poking a hole in the body. Other drawbacks of this method are the amount of time consumed and wear on the searcher.

A variation of this method is using a similar probe with a larger hollow shaft for taking soil samples. These soil samples are then tested for the presence of calcium (bone) that leaches into the soil from the decomposed body.

**BULLDOZER** - This is probably the last resort, but if your situation calls for it, use it. Try taking off layers of six to 12" at a time in the suspected area. You should be able to see a soil disturbance or maybe even the body itself. More damage can be done by this method than any other, but at least you found the buried body.

**PSYCHIC** - It can't hurt to try anything once!

Some of the search techniques listed here requires good old fashioned manual labor. The technique used will depend on the terrain, the size of the area to be searched and the manpower available.
SURFACE RECOVERY

Once you have completed the search and you have located the body that is on the surface you must define the recovery site. Keep in mind that there may be extreme scattering of the bones or body parts by animals. The area encompassing the scattered bones may be a few feet or several yards. Some of the bones may never be found because of vast scattering or consumption by animals. The bones may even be covered by vegetation, dead leaves or fallen trees or branches. This covering of the deceased may be intentional by the suspect to camouflage the body.

How large is the above scene?
Now that you have located the remains and have defined the recovery area, proceed as you would with any other crime scene. Again you will have the area secured, examine and evaluate the site, photograph, sketch, and process. An evidence free access to and from the site must be established. An outer perimeter search must be completed to locate other body parts or physical evidence. A command post should be set up, preferably away from the recovery site. A check point should also be set up to check personnel and limit the number of people who are entering the site, just as would be done with any other crime scene. One way of limiting the hassle caused by other people entering the scene is to take polaroid pictures of the site and leave them at the command post for viewing.

The most difficult part of this scene is now over. Take your time and do not permit anyone to rush you. Do it right the first time because there are no second chances.

The next steps after you have the site photographed and sketched is to clear away all the vegetation and debris. This must be performed in a way that avoids disturbing the remains or any of the physical evidence that is present. Again, photos should be taken of the new "clean" site. Using rope or string, a grid should be set up for the purpose of locating the items by measurements and for ease in placing the items on a sketch. The grid should be measured so that the sides are square to each other as much as possible. A metal detector should have been used earlier and prior to any further processing. Any items located with the detector
should be marked with a wood or plastic stake for future reference. Plot all evidence and remains on the sketch. Close up photographs should be taken of all items prior to their removal. Of course the photographs should be taken with a scale to show the size of the item.

All evidence collected should be packaged separately. As a rule of thumb, each item of evidence should be packaged in a paper product unless it is liquid, in which case it should be placed in a glass vial. Paper product means paper fold, paper bag, or cardboard box. The remains of the deceased should be packaged separately if that is the way they were found. If the body is intact use a wooden backer board, white sheet, and body bag.
Once the surface of the site has been cleared of all remains and evidence, then recheck the area with a metal detector. If you have no further readings with the detector then the next process is to examine and excavate the top six inches of soil for any further evidence or bones. In some instances the remains have gone through a self burial. By this I mean that any object placed on the surface of the ground will work its way into the ground to some extent, depending on weight, ground density and weather conditions. This will of course depend on the terrain of the area, time elapsed and weather conditions.

In removing the top few inches of soil we have found that the best method is to cut the area into strips about six inches wide and then to remove the soil from the strips a section at a time. This material should then be sifted with a fine sifter. A sifter of 1/4" or 1/8" mesh should be used so you won't miss projectiles or teeth. Once this is completed you can be assured that you have collected the maximum amount of evidence and remains from this site.

Don't overlook the possibility of contaminants in the soil beneath the remains. A sample of this soil should be collected for further analysis at a laboratory along with a standard of the soil from the general area.

Finally recover all other evidence or body parts in the area outside of the recovery site. This recovery should be handled and processed as thoroughly as any other outdoor crime scene.
The length of time spent from the initial search to locating the remains to the completion of the processing of the site may be several days or weeks. Because of this time element you must take into account the weather conditions and plan accordingly.

EXCAVATION TECHNIQUES

The same basic procedures that apply to surface recoveries apply to excavations. The difference is that a majority of the evidence and the remains are below ground level.

Once you have the burial site located and defined you must decide on which method you will use for the excavation. There are basically three methods of excavating the ground around the body:

HOLE - As the name indicates, a hole is dug, uncovering the remains as the soil is removed from over the body.
**TRENCH** - A trench is dug next to the remains to a depth of two feet below the upper body level. The trench must be at least the length of the body and approximately two feet wide. This trench will then give you sufficient room to work and collect evidence and the remains. With this method you will also be able to define three of the four walls of the grave.

![Trench Diagram](image1)

**TABLE** - A table is dug by trenching all around the body, usually leaving a table approximately four feet wide by seven feet long and extending two feet beyond the depth of the body. This method will leave all four walls of the grave intact plus give you plenty of room to work all around the body.

![Table Diagram](image2)
I use the table method every opportunity I have because of the ease and comfort it provides while removing the remains and evidence.

Whichever method you decide to use the first thing you must do is to estimate the position of the body under the ground prior to the excavation. This is not as difficult as it sounds. You already must see some portion of the body because you have determined that there is a body there. Based on what you can see, overestimate the position and dig around it.

As with any of these methods you should remove the soil in strips approximately 12" wide and six inches in depth. The soil should be hand checked and sifted as the different layers are removed. This is where it becomes necessary to have one qualified person in the pit and at least four other people using the sifters.

What are you looking for in the soil? Basically anything that is not soil could be evidence or bones! We have found coins from victims' and suspects' pockets, a wine bottle cap that was physically matched to a wine bottle found in the suspect's vehicle, skin tissue with ridge detail that was identified as the ring finger of the victim, soy beans and corn stalks that gave us a time element of the burial, magazines that gave us a time element, and a whole host of other unusual items, not excluding weapons and projectiles. You have to expect the unexpected and remember that any and all forms of evidence can be found in a grave site.
We have found that the easiest method of removing the body is to wrap it in a white sheet and place it onto a wooden backer board (all fire departments use them) before removing it from the grave. This will keep the body intact and make transportation easier. Once the body is removed do not forget to check the ground under it for the suspects footwear prints in the soil; stranger things have happened. The soil beneath the body must also be removed for several inches and sifted again to locate evidence, bones, projectiles, and teeth.

Time after time I have seen and heard of cases where the buried body is literally yanked out of the ground and taken away from the scene with no thought to evidence either in the grave or on the body. Just because a body is buried does not mean it can't tell you a story or point a finger at the murderer. Why make your job more difficult then it already is?

If this was a fresh homicide scene and the body was in a parking lot wouldn't you use everything at your disposal and do everything possible to process the scene? Then why is it that when a body is buried investigators often have a different attitude? Probably because it is something with which they are unfamiliar. I hope this manual will give you a little insight into the possibilities of evidence and techniques in the recovery of human remains.

Remember to take your time in the recovery of the remains and try to plan for the welfare of your workers, the changing weather conditions, equipment needs, and 24 hour security at the scene.
EXHUMATIONS

An exhumation or disinter is the removal of a legally buried casket from a cemetery. Persons legally buried may need to be exhumed because of possible misidentification or new information as to the cause of death. These conditions usually occur because the body was not properly processed prior to burial.

Exhumations are simple. The investigator needs to photograph the grave prior to digging, during the exhumation and after the casket is removed. Of course a court order or written consent must be obtained prior to any exhumation. Before you start the exhumation, have detailed information about the alleged deceased, name, age, height, weight, sex, and cause of death. A positive identification of the deceased will be required.

The only other item the investigator needs is a soil sample from the grave site to prove that any toxins found in the body did not leach in from the surrounding ground. This soil sample should be taken from all four sides of the grave and beneath the vault. A soil standard is also required and should be taken from the area adjacent to the grave.

The casket and body are removed and transported to where the autopsy will be performed and once the autopsy is completed the body and casket are returned to the burial site. The entire sequence is photographically recorded.
ADDITIONAL INFORMATION

I have touched only lightly on the actual excavation and surface recovery procedures. The particular method you use will depend on the terrain at the recovery site. Remember to check the secondary area of the recovery site for items of evidence, tools used to bury the body, clothing, tire tracks, footwear prints, and trash left by the suspect. Prior to starting the excavation contact the utility companies for the location of any buried cables or pipes. If the weather dictates, have available an enclosed tent to cover the grave. If there is no shade, provide at least a canopy to cover the workers. Heat exhaustion is not an uncommon problem.

You may use a variety of shovels but as you get closer to the remains change to smaller digging instruments, a hand trowel, bamboo stick or dental instruments. The diggers will work faster than the sifters, so have plenty of people sifting the removed soil. Try to build sifters so they are four feet above the ground for comfort of those sifting. Use clean plastic buckets to remove the soil from the excavation and transport it to the sifters. Know where each bucket of soil came from in the grave site, so the original location of any evidence recovered can be documented. The sifters should be 1/2" and 1/4" mesh. Educate the people doing the sifting so that they will be able to recognize evidence. Work only during daylight hours and give the workers sufficient break periods. Do not tire them out on the first day. Boredom in the people sifting will cause them to miss evidence.
Water is needed at the recovery site for drinking, cleaning your hands and equipment, and for cleaning items of evidence.

If the property that you are on is private property a search warrant or written consent is needed.

The news media will try to get as close as they can to the burial site. Use police barrier tape to secure and identify your outer perimeter. Watch for low flying helicopters with reporters. Turbulence from helicopter blades once collapsed a tent we were using.

Security must be provided at the site on a 24 hour basis. We have had people try to remove "souvenirs" during the night. Security on site is also for the prevention of theft of your equipment.

If you dig far enough you may hit a water table or a pocket of water. This will require a sump pump and a generator.

Recovery sites are all different and we must be able to adapt to them. This is why prior planning is a must. Equipment must be located and must be available on weekends and holidays.

If you don't know what you are doing, **DON'T DO IT!** Anybody can dig a body up but without training, few can find or identify the evidence in these situations.
IN SUMMARY

I hope this manual will give you a little insight into the possibilities of evidence in the recovery of human remains. I have tried to tell you in this manual how simple the recovery of human remains is, but it is difficult to put into words the simplicity of these cases. As in all crime scenes, you can do a poor job in processing or you can gather all the information available. That choice is up to you and your agency.

I would not expect you to process a multiple homicide scene with little or no information about the proper techniques for processing scenes nor would I expect you to jump into an excavation site without the proper training.

This manual is written as an overview on recovery techniques. Its sole purpose is to whet your appetite so you will seek additional training and read other books on this subject.

Remember to take your time at the sites, record everything (notes, photographs, and sketches), and do not assume anything!

I have included the following case synopses to provide information on some of the cases I have been involved in. Several items of evidence that gave investigators valuable information, not to mention crucial physical evidence, were recovered from these cases.
CASE #1: A hunter walking in a wooded area on the outskirts of a cemetery found what appeared to be skeletal remains scattered in the fallen leaves. He contacted the local police and they called for a crime scene specialist and the coroner. Prior to the arrival of the crime scene investigator several of the bones and fragments were removed and taken to a local doctor for examination. The crime scene investigators arrived and conducted an examination and started normal surface recovery techniques. They discovered what appeared to be two partial skeletal remains that were human. At this time conflicting information was received from the doctor that the bones were that of a dog and the coroners office was satisfied. The recovery was continued and all of the recovered bones and fragments were taken to a Forensic Anthropologist. The bones were of two male Caucasians and had died over 40 years ago. No signs of trauma to the bones were observed. Where did the bones come from? Probably new construction in the area accidentally dug them up and then disposed of the bones near the cemetery. All construction in the area was checked. Finally the construction site was located and they admitted to disposing of the remains. They had excavated what appeared to be unmarked graves in an area that was once a farm. They felt that if they had told the authorities the construction would have been halted, costing them time and money. They were right, it did cost them. Construction was halted for several days while the area was further examined.
CASE #2: While a farmer was plowing his field in the spring he discovered a foot protruding from the cultivated ground approximately 300 feet from the nearest road. The field was examined by investigators, a search warrant was obtained, and a perimeter was set up approximately 40' by 40' surrounding the foot. An evidence free path was created between the marked perimeter and the roadway where the command post was set up. After consulting with a Forensic Anthropologist and photographing and sketching the area the excavation was started. The position of the body in the ground was estimated and a three foot by seven foot table was dug leaving a trench approximately two feet wide by three feet deep surrounding the table. An examination of the table walls indicated the soil was disturbed in the lower half of the table. This indicated the body was curled up and not laid out straight. The top four inches of loose soil was removed from the table and examined. From there a strip of soil was removed from the center of the table, side to side. The strip was 12" wide by six inches deep. The entire table was processed in this manner completing one layer at a time. As each layer was completed a sketch was made indicating the position of the body and any evidence collected. This was done until the entire body was exposed, which took five layers equaling approximately 30" below the surface. The body was then removed on a backer board and body bag. The soil under the body was examined and another 12" was removed. During the layer removal soy beans were found on top of the body indicating the body was buried prior to the soy beans being planted. Under the body was a decomposed corn stalk which indicated the body was buried after
the corn was tilled under. This gave us a time element of October to April and during that time period there were three females reported missing in the area. The dental records of two of the missing women were obtained and one of them was our buried body. Also found in this grave at approximately 24" below grade was a wine bottle cap that was later physically matched to a wine bottle found in the suspects vehicle. This body was buried approximately 2 1/2 years prior to its discovery. This excavation took three days of working from dawn to dusk. No work should be performed at night except in highly unusual circumstances.

**CASE #3:** A homeowner called the police and stated that while digging in his dirt floor basement he uncovered several bones and artifacts indicating a human burial. The home was approximately 115 years old. Investigators examining the burial hole discovered an old button down shoe, an old hot iron and several bone fragments. The homeowner had dug a hole about three feet wide, four feet long, and two feet deep. The examination of the bones by a Forensic Archaeologist revealed the bones were of a pig. No further excavation was conducted; however, this story made the front headlines in the local newspaper for two days. Of course this was found on Halloween! Time spent was about six hours.

**CASE #4:** An informant currently serving a 40 year prison term stated that he knew where a prominent person was buried. The person in question was missing at this time for 5 1/2 years. The information led the investigators to a wooded area near a creek and stated that the person was buried in there, pointing to somewhere in approximately 2 1/2 acres of
woods. The information from the informant was verified to the extent possible and the search was on. Taking the questioned area and dividing it up into strips five feet wide the entire area was searched for burial indicators and marked with stakes. Using a variety of search methods approximately 365 spots were marked as possible burial sites. Each site was probed and excavated with no results. Time spent was three weeks with about 30 people for manpower. The informant stated that he was mistaken and the body was buried on the other side of the road which was about five acres of woods. He was immediately taken to jail without passing go!

**CASE #5:** A farmer was plowing his field in the fall to till under the corn stalks when he found what appeared to be the remains of a child. Investigators called for the crime scene investigators and they examined the scene and secondary area. The remains were located in a corn field parallel to an interstate highway and approximately 90' from the fence line. The remains were not of a child but that of an adult male. The remains had been run over several times by the farmers equipment causing the implantation of the remains in the soil. In processing the scene the victims drivers license was discovered and a loaded revolver next to the body. The victim was shot twice, once in the head and the other in the chest. Three spent casings were found in the weapon. The victim's vehicle was located by checking police tow records from that area of the interstate. The vehicle was towed after being tagged as an abandoned vehicle two months prior. A check with the victims family revealed that the victim left his residence in a depressed state the day
before his vehicle was towed. A search of the vehicle revealed that it was
loaded with the victims’ possessions and only one person could have been in the vehicle. The back seat, trunk, and half of the front seat was packed with the victim's possessions. One projectile from the body was matched to the weapon. After completing the processing of the scene and vehicle it was determined that the victim ran out of gas on the expressway, got out of his car and climbed over the fence, went about six rows of tall corn in the field, shot himself in the chest (not hitting any vital organs), then shot himself in the head. All of this was reconstructed from the investigation, scene, autopsy, and vehicle.

**CASE #6:** After being called to a shooting scene the investigators found a large pool of blood and other evidence indicating that a homicide had occurred in the building. However, no body was located. After nine months a suspect was developed and he admitted to knowing where the body was located. The suspect took the investigators to an adjoining state where he allegedly buried the victim in a garbage dump. The suspect pointed out an area about the size of a football field and said "Somewhere in there". The suspect stated that he used a bulldozer to bury the body. The investigators started to search the area and were stopped by the local police whose jurisdiction the garbage dump was in. The coroner was notified and he requested the assistance of trained crime scene specialists in the recovery of the remains. The area was examined and a determination was made to use an end loader to remove the top layers of garbage and soil. After several passes with the end loader it was determined that the body could not have been at this location due to the
hardness of the ground. An area adjacent to this seemed to have better "burial indicators" and was excavated with the end loader by scraping the surface. The victim was discovered within two hours of this operation. The victim was wrapped in clear plastic by the suspect and placed at this location. The victim was removed still wrapped in the clear plastic. Even though the suspect told the investigators where the body was, and he was wrong, he did not confess to the homicide. Evidence recovered from inside the clear plastic wrap and the wrap itself proved fatal to the suspect. Without the recovery specialist the victim may have never been found, let alone the crucial evidence that was recovered. Total time spent was eight hours.

**CASE #7:** While surveying a new housing development a surveyor found a decomposed body between rows of corn in a farmer's field. The remains were partially buried in the soil. The investigator examined the scene and observed that the remains appeared to be of a male, fully clothed, and missing his arms. The remains were not actually buried but had been run over by the farmer's tractor on previous occasions. The arms of the deceased were removed by animals, not by a suspect. Gnawing on the exposed bones was obvious. In processing the scene a small piece of skin tissue with ridge detail was recovered by sifting the soil. This tissue was compared to inked prints of several missing people and a positive identification was made to the left ring finger of a local resident. The cause of death was by gun shot, obvious by the wound in the skull. No projectile was recovered from the scene. Time spent in processing this scene was eight hours.
CASE #8: A wealthy person was kidnapped and buried alive pending a ransom being paid. The suspects had the crime well planned, with the casket built several weeks in advance. The suspects were apprehended two days after the kidnapping through excellent police work. However, upon locating the burial site with the suspect, the victim was found deceased due to suffocation in the homemade casket. The casket was made of 3/4" plywood and reinforced with 2 X 4's. All the seams were caulked to prevent water from seeping in and a vent tube was made with 1 1/2" PVC piping. The plastic pipe was approximately 30' long and all the joints were glued. The plywood casket was buried in all sand soil to about two feet below ground level. The casket was approximately three feet wide by two feet high by seven feet long. Inside the casket were candy bars, drinking water in plastic jugs, and a car battery to operate a small light. The victim survived about two hours inside the casket before suffocating to death due to an inadequate air supply. The scene was processed and several items of evidence were collected, including a shovel and rake left at the scene by the suspect. The suspects in custody would not admit to burying the victim, indicating that they only had knowledge as to where he was buried. Due to the size of the casket and the lengths of plastic pipe the evidence was processed for latent prints in a local garage. With the use of a portable laser one partial latent print was recovered on the plastic pipe that was identified to one of the suspects. This print was less than 1/4" in diameter. Total time for excavation and latent work was four days.
CASE #9: Investigators received information from an informant concerning the location of a mob burial site. The location was on the grounds of a rural residence once owned by a mob boss. The informant's information was verified and the informant took the investigators to the site and pointed out the site of one of the burials. The informant told the investigators the deceased was buried several feet down about 10 years ago and bags of lime were placed on the body to speed decomposition. The investigators dug an exploratory hole in the location and found lime and a body. The excavation was then halted and a task force set up. With information from the informant a search warrant was secured for the entire area which was the size of approximately five football fields. Allegedly there were about seven burials on the property. The property consisted of a hilly area with a great deal of vegetation in the form of trees, bushes, and tall weeds. Also on the property was a small pond. Unfortunately, also on the property was the construction site of a large single story brick structure. The excavation of the body started after a team was set up consisting of about 30 workers, a crime scene investigator, and a Forensic Anthropologist. After examining the burial site and estimating the position of the body a trench was dug adjacent to the length of the body. The soil was hard clay and extremely difficult to dig through. The remains were about five feet below ground level. The clay was removed a layer at a time and sifted by six different sifting crews. Each sifting crew consisted of four people at each sifter. Sifters were made at the scene by using 2 X 4's and 1/2" wire mesh. Each sifter was made with four foot legs to prevent back strain on the sifters. A tarp was placed over the site creating cover from the sun and weather
conditions. After three days of excavating the burial site the victim was exposed and ready for removal. The victim was then removed and transported to a local morgue for an autopsy. Meanwhile, the team was contemplating the search for the other burial bodies. All known avenues for searching techniques were used with no results. As a last resort two earthmovers were brought in and the entire area was searched by removing six inches of soil at a time. After two months of searching a second burial site was discovered. This site was discovered by looking for soil disturbance as the earthmovers removed the soil a little at a time. The second body was then excavated and several items of evidence were recovered from this grave. The search continued for the other burial sites, including draining and digging under the pond. No other sites were found. This entire operation took about five months and cost approximately one million dollars. Both victims have since been identified.

CASE #10: While plumbers were trenching a hole next to a foundation of a building to repair a broken water pipe they found a portion of a skull. The crew stopped and contacted the police. The Coroner’s office then called for recovery specialists who examined the site and determined the approximate position of the body by the size of the nearly invisible depression in the grass covered soil. The excavation was completed in about six hours. It was determined from the recovery site that the body was placed there several years ago without any clothing. No material, buttons or metal clasps were located. An anthropologist determined the remains were of a teenager and had been buried 40 to 60 years earlier.
No identification has been made. The lower jaw and neck bones were never recovered. One possibility is that the remains were reburied several years ago losing the neck and lower jaw.

With this sampling of case synopses I've tried to show several different types of recovery sites and how they were handled. Time and space does not permit me to go into greater detail, however you can see the variety of burial sites that I have encountered. Not all recovery sites will be for human remains; sometimes you will find animal carcasses. I have spent many hours at a recovery site only to find that someone had buried their pet dog. However I do have the satisfaction of knowing that I did the job right.

Just remember, recovery sites are the same as any other crime scene. You must plan for the unexpected and use the simple formula of Interview, Examine, Photograph, Sketch, and Process.
Now that you have completed reading this manual I must remind you of the team concept. The recovery of human remains requires a few more people than yourself or the team that recovered the remains. Besides the all important first officer at the scene, the crime scene technician, the coroner/medical examiner, the forensic pathologist, the investigator, and the states attorney there are a few other people that you will need or at least take into account their expertise. They are:

**Forensic Anthropologist**, a court qualified person who can tell you the maximum information from the recovered bones. i.e.: sex, height, weight, age, and perhaps if the person ever walked with a limp, or if he was left or right handed.

**Forensic Entomologist**, a court qualified person who deals with the study of insects. They will be able to narrow down the time of death by the study of the maggot infestation on the remains.

**Forensic Odontologist**, a court qualified person who deals with the teeth. They are capable of making a positive identification by comparing the deceased's teeth with know dental records.

**Forensic Sculptorist**, a court qualified person capable of a facial reconstruction from a skull.

Without these experts many of our cases would have remained unsolved due to a lack of positive identification of the deceased or a lack of an accurate time of death.

The time to locate these experts in your area is now, not when you find the remains. Remember the old Boy Scout motto "Be Prepared".

Finally, the one investigator that can do everything himself usually has several unsolved cases, whereas the team effort of experts have few if any unsolved cases. The choice is yours.
REFERENCES AND RECOMMENDED READING

TECHNIQUES OF CRIME SCENE INVESTIGATION
Editors: Arne Svenson, Otto Wendel and Barry A.J. Fisher
Publisher: Elsevier Science Publishing Company, Inc.
52 Vanderbilt Ave., New York, New York 10017

POLICE PHOTOGRAPHY
Editors: Sam J. Sansone
Publisher: Anderson Publishing Company, Cincinnati, Ohio

PRACTICAL HOMICIDE INVESTIGATION
Editors: Vernon J. Geberth
Publisher: Elsevier Science Publishing Company, Inc.
52 Vanderbilt Ave., New York, New York 10017

MEDICOLEGAL INVESTIGATION OF DEATH
Editors: Werner V. Spitz and Russel S. Fisher
Publisher: Charles C. Thomas, 2600 South First Street
Springfield, Illinois 62717 (217) 789-8980

HANDBOOK OF FORENSIC ARCHAEOLOGY AND ANTHROPOLOGY
Editors: Dan Morse, Jack Duncan, and James Stoutamire
Publisher: Bill's Book Store, 107 South Copeland
Tallahassee, Florida

FOUND! HUMAN REMAINS
Editors: Mark Skinner and Richard Lazenby
Publishers: Archaeology Press, Simon Fraser University
Burnaby, British Columbia, Canada
EQUIPMENT LIST

1. Recording Equipment:
   a. Digital Camera
      1. Normal, macro, and Zoom lens
      2. Tripod and Cable release
      3. Memory cards
      4. Measuring devices
      5. Flash attachment
   b. Video camera
      1. Sturdy tripod
      2. Extra video tapes
      3. Extra Battery Supply
      4. Auxiliary Lighting
   c. Notebook
   d. Sketching Equipment

2. Clothing:
   Appropriate attire for weather conditions

3. Digging Equipment:
   a. Shovels
   b. Hand Axe
   c. Hand Trowel
   d. Whisk Broom
   e. Dental Instruments

4. Miscellaneous
   a. Portable Generator
   b. Canvas Tent
   c. Port-a-Potti
   d. Auxiliary Lights
   e. Metal Detector
   f. Metal Probes
   g. Sifters: 1/2" and 1/4" screens
   h. Plastic Buckets for Soil
   i. Rope or Barrier Tape
   j. Wooden Stakes
   k. Compass
   l. Plastic Tarp (to cover hole)
   m. Plastic Ground Cover

5. Evidence Packaging
   a. Paper Bags
   b. Plastic Bags
   c. Evidence Tape
   d. Small Metal Cans

The type of scene will dictate any other equipment that you will need; i.e., farm field, wooded area, sand beach, etc.
SCREEN SIFTERS

Material List for Sifters

1. Four 2x4's 24" long
2. Four 1x1's 24" long
3. 1/2" metal screen
4. Two garage door handles

ADDITIONAL MATERIAL FOR SCREEN INSERTS:

5. Eight 1x1's 24" long
6. 1/4" and 3/8" metal screen (fabric)

SHORT SHOVEL

Solid metal probe is made from stainless steel rods. The shaft is 3/8" thick and four feet in length. The handle is eight inches long and 3/4" in diameter. The shaft is threaded to screw into the handle. The tip of the shaft is slightly rounded.

HOLLOW METAL PROBE

Hollow metal probe is made similar to the solid metal probe except for the screw on adapter tube. This adapter is also made from stainless steel. The adapter is hollow and has an opening on the side of the tube for cleaning the debris from the tube. The tip of the tube is replaceable and has a tapped end. This tube is used to take core samples of the soil and is commercially available.
Bio-Sketch

Hayden B. Baldwin is the Director of Forensic Enterprises, Inc. www.feinc.net He retired in 1998 as a Master Sergeant with the Illinois State Police. He graduated from the Illinois State Police Academy in 1970. He worked as a Patrol Officer, Field Training Officer, and Crime Scene Technician. He was promoted to Crime Scene Supervisor in 1987. As a Crime Scene Supervisor his responsibilities include the daily supervision of the crime scene investigators in the Chicago area. His crime scene unit handled several hundred death investigations each year. He has more than 18 years’ experience in crime scene investigations, the last 11 years as the supervisor.

Mr. Baldwin received a BS in Criminal Justice Management from the LaSalle University in Mandeville, LA. He graduated from the F.B.I. National Academy in 1990, Session 162nd and was certified by the International Association for Identification as a Senior Crime Scene Analyst. He is the Past President of the Illinois Division of the I.A.I. and Past Chairman for the Crime Scene Certification Committee. He also served on several committees for the International Association for Identification, including the Instructor Certification Committee, the Management Advisory Board, and Crime Scene Certification Board. He is a Certified Law Enforcement Instructor in Illinois and Arkansas. He is also a Certified Computer Composite Artist Instructor. He is a nationally recognized expert in the recovery of human remains.

Mr. Baldwin teaches courses in Crime Scene Processing, Crime Scene Investigation, 1st Responder, Forensic Evidence for Managers, Crime Scene Photography, Using Forensic Light Sources, Death Investigations, Crime Scene Management, the Recovery of Human Remains and Forensic Computer Composites. He has taught at several Universities, Colleges, and Police Academies throughout the country, including the F.B.I. Academy. He has guest lectured on several occasions at symposiums, conferences and seminars. He trained the Illinois State Police Crime Scene Investigators and played a major role in developing their training manual and training program. He is the Lead Instructor for the Crime Scene Technician Program and other crime scene courses at the Criminal Justice Institute in Little Rock, Arkansas.

Mr. Baldwin also is sought as a consultant on crime scenes, locally, nationally and internationally. He has served as the Forensic Advisor for Jamaica Constabulary Force and Goias, Brazil. He was a member of the FBI’s Scientific Working Group Disaster Victim Identification.

Mr. Baldwin has several articles published in the field of crime scene investigation. He is the author and publisher of “A Law Enforcement Manual for the Recovery of Human Remains”. He has also co-authored chapters in the Forensic Science Encyclopedia and Forensic Medical Encyclopedia. He has written articles for several publications and his articles appear on numerous web sites throughout the world.

He has testified and recognized as an expert in crime scene investigation in local, county, state and federal courts. He has testified for both Prosecution and Defense in both Civil and Criminal Cases.

Mr. Baldwin was instrumental in creating a new organization for crime scene examiners called ICSIA, International Crime Scene Investigators Association. He currently serves as the Executive Director of the Association. Additional information can be obtained from ICSIA’s web site at: www.icsia.org