ANTEMORTEM

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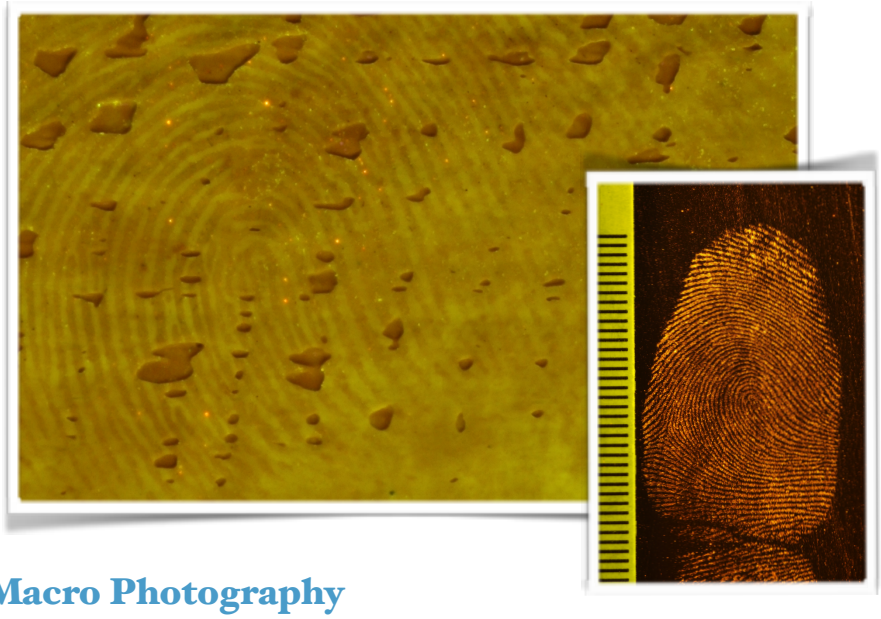
Tips and Tricks

Some patrol officers and ETs have a hard time putting up barrier tape to secure a crime scene. They get tunnel vision and think they can only use fixed objects such as trees, fences or even squad cars to tie the tape to. The end result is an odd trapezoid shape that has nothing to do with what really needs to be secured.

Try not to tie tape to a squad car. The vehicle might have to break for another call or end of shift. Instead, use engineering stakes (simple pieces of wood) or fiberglass driveway marking rods and the traffic cones everyone has in their vehicles. This allows you to tape off and secure exactly what you need without having to rely on fixed objects. Engineering stakes can be created from scrap wood or purchased from big box hardware stores for a minimal expense.



Macro Photography

There are several steps involved in taking a good quality well exposed photograph of an item in a crime scene. Prior to photographing an individual item such as a knife, gun or fingerprint the ET must first take overall and relational photographs to properly place the item in the scene. The location of any item can be determined by viewing the previous couple photographs. The individual photograph of the item must be in focus, properly exposed (ISO, Aperture, Shutter Speed), be orientated ninety degrees to the film/sensor plane and fill the frame.

Filling the frame means the item (and scale) should fill the entire view finder as much as possible in both directions. This will ensure the greatest area on the sensor is used, which will allow the photograph to be enlarged more before losing detail and becoming distorted. This becomes important when taking photos that will be used for comparisons such as fingerprints. Taking close up photos of small objects (fingerprints) and reproducing them as close to life size as possible on the sensor is called macro photography. Several problems can arise when dealing with macro photography.

One problem is regular lenses cannot focus on small items close enough to the front of the lens to fill the frame. To accomplish this, specialized equipment is required such as a macro lens or close-up filters. (continued on page 2)

"Forensic Excellence Through Training"

Organizations

Joining various forensic related organizations is beneficial to any Forensic Investigator. Below is a list of a few that are either local to Illinois or are national organizations.

International Association for Identification (IAI) - www.theiai.org

Illinois Division IAI (ILIAI) - www.id-iai.org

Illinois Association of Property and Evidence Manager (IAPEM) - www.iapem.org

Upcoming Training

09/10/14 Latent Print Workshop (NEMRT)

09/15/14-09/19/14 Lead Homicide Investigator (NEMRT)

09/23/14 - 09/24/14 Arson Investigation (NEMRT)

09/29/14 Electronic Device Evidence Recovery and Analysis (SLEA)

09/30/14 - 10/01/14 Basic Police Photography (NEMRT)

10/13/14 - 10/17/14 Basic Evidence Technician Program (NEMRT)

10/20/14 Intro to Bloodstain Pattern Recognition (SLEA)

10/23/14 Evidence Property Management (SLEA)

10/27/14 - 10/31/14 Basic Evidence Technician (SLEA)

11/10/14 - 11/14/14 Bloodstain Evidence Pattern Analysis (SLEA)

11/17/14 - 11/19/14 Death Investigation 1 (SLEA)

A macro lens is a lens that is capable of reproducing a life-sized image of an object on the film/sensor. A true macro lens has a magnification factor of 1:1 at its closest focus point. A common reference used throughout many texts is a postage stamp will fill the frame and is the approximate size of the film/sensor plane. Macro lenses can be expensive. Also, some lenses are marketed as macro when in fact their magnification factor is actually much higher than 1:1. For crime scene work, a lens with a magnification factor of 1:1 or 1:2 works well.

Close-up filters can also be used in conjunction with a regular lens to accomplish macro photography. These lenses look like a UV or haze filter and screw on to the end of the lens in the same manner. They come in several different magnifications and can even be used in combination with each other by screwing on multiple lenses They are cheaper than macro lenses but can introduce distortion because it's adding other glass barriers between the subject and the sensor plane.

Another problem that occurs with macro photography deals with depth of field. The depth of field (area in focus) can easily be 0.5mm. This means that only the area roughly 0.25mm in front of and behind the point of focus will actually be in focus. If the subject is truly flat this does not pose a problem, but even fingerprints are three-dimensional.

Proper exposure to get a good quality image can also be a problem. All critical comparison photographs should be taken at 200 ISO. This creates a better quality image that can be enlarged and keep its detail. Generally this means the photographer needs to adjust the other camera settings to get more light onto the sensor to get a properly exposed photograph. If you are using a flash keep in mind its location. A good quality external flash mounted on top of a digital SLR can be seven inches above the center of the lens. When the camera is very close to the subject (such as a fingerprint on a vertical surface), the flash may only illuminate a very small area several inches above the subject itself. The flash may need to be taken off the camera and either used with a synch cable to side light the fingerprint or a ring flash needs to be used. A ring flash attaches to the end of the lens itself and illuminates the area directly in front of the lens instead of above. The actual flash may consist of several flash units mounted to the perimeter of the lens or a single flash wrapped around the circumference of the lens.

Macro photography requires some specialized pieces of equipment and training. Take time and practice when time allows. Place your own fingerprint on a surface. Dust it then attempt to photograph it. Learn the capabilities and limitations of your equipment. The first time you attempt this should not be on a homicide where you have a bloody fingerprint that cannot be lifted and has to be photographed.

Upcoming Conferences

September 18th, 2014 - IL IAI Fall Training Workshop (IDIAI)

The Illinois Division of the IAI (Professional Peer Forensics Group) will be having their Fall Training Workshop at Aurora PD on 18SEP14. Training on this day will focus on Fingerprint Identification, Impression Evidence Photography and Blood Stain Enhancement. Two separate distinct tracks are offered for both Forensic Scientists and the Crime Scene Investigators who will be attending. The ID-IAI is also currently in the planning stages for its 3 day training conference which will take place 20-21APR15 in Naperville, IL. For more information on both of these events please visit: http://www.id-iai.org/ or like our Facebook page at: www.facebook.com/IllinoisIAI .

January 8th, 2015 - 1st Annual Midwest Forensic Training Conference (SLEA)

The Suburban Law Enforcement Academy (SLEA) at the College of DuPage (COD) will be hosting the First Annual Midwest Forensic Training Conference on January 8th, 2015. The focus of this conference will be practical hands-on training that puts the attendees into mock/real scenes of various types. Attendees will actually be documenting, collecting and packaging real evidence from fire scenes, vehicle shootings, mock sex assault scenes, etc. Each workshop begins with a lecture then ends with some type of practical lab or exercise. I have attached the conference brochure and registration form with this newsletter. Stay up to date with all conference information at www.facebook.com/MidwestForensicTrainingConference

Supervisors: Managing Large Crime Scenes

Large crime scenes can be difficult and time consuming to process. Multi-victim homicides spread over multiple crime scenes can involve the management of more than one team of ETs. Resources and specially trained personnel (blood stain/bullet trajectory reconstruction/etc.) from other agencies may need to be requested and managed. Involved, well trained supervisors can greatly affect the efficiency and overall success of the investigation.

Supervisors need to take the below listed areas into consideration to help ensure the ETs actually processing the scene are doing their best possible work.

Supervisor's Role: On large or important crime scenes, the supervisor acts as a barrier between the ETs processing the scene, and everyone else involved in the investigation. The ETs relay information to the supervisor who then relays it to case investigator, coroners, etc. If the ETs are constantly interrupted and have to stop processing the scene and talk to every investigator or try to explain something, it delays the processing and things can be missed. The supervisor can relay the information and answer any procedural questions to others without interfering with the processing of the scene. If important information needs to get passed to the ETs, everything goes to the supervisor and he decides when and how often to contact the processing team.

Some Departments have mobile command centers that respond to homicides or other important investigations. This is a perfect location for the crime scene supervisor to be located. Everyone knows to go to the command center to get various information and assignments. Videos from inside the crime scene can be played to show others what's inside.

Fatigue: A homicide scene may take many hours to several days to process. It is important to identify when a scene may become a long event. ETs may need to be broken down into relief teams so any one person isn't working more than 6-8 hours. Crime scene processing is a very detailed oriented. A homicide may come down to a single hair found in the suspects vehicle. If the ETs have been working 6 hours straight they could easily miss it. Plan frequent breaks. Get the ETs out of the scene to get some air, water, food, etc to refresh them. Ensure items such as food and water are available.

Specialty Trained Personnel: Processing the crime scene may involve sciences that the investigating agency ETs are not trained in. These areas could include: bloodstain pattern recognition and documentation, bullet trajectory reconstruction, vehicle CDR analysis, etc. The supervisor should already have an idea where he can pull these resources from. This might include a task force, Sheriff's Office, State Police, etc. Physical resources such as flood lights, porta potties, etc. might also have to be acquired. Have a list of where to get common resources and specialty trained personnel compiled ahead of time. This will save time later when you have to use them.

Barriers/Security: Most ETs are trained in how to secure a crime scene and what to secure. The supervisor needs to take other considerations into account. The primary perimeter may consist of the house and yard. This area can be roped off with crime scene tape. Never park any department or support vehicles inside this perimeter. A secondary perimeter can be created that keeps unwanted people out, but provides for a secure area for crime scene vehicles, command post, etc. There is always potential for the news media to show up at a homicide or high profile crime scene. Most cops do not like dealing with the media, but as a supervisor, a good working relationship can go a long way and make things run smoother. On a large scene, it might be beneficial to setup an area cordoned off just for the media. This area should give them a camera shot of the scene from outside the perimeter. This keeps them from trying to circumvent you and get to the scene and take their shots. Also, if you tell them a representative will come to this area every so often and pass information, they are more likely to stay put.

Quiz

Question: How many photographs should be taken to properly document a shoe impression in dirt?

Think about how you would photograph the impression. The answer will be discussed in next quarter's newsletter.

Stay Tuned

Next quarter's newsletter will cover such topics as gun shot residue and photographing trajectory lasers.

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Use of Tent Cards

Photo evidence markers, also known as tent cards, are used by many forensic investigators. There are two primary reasons for using tent cards. One is to assist in the documentation of evidence by assigning an individual item a number or letter in the photograph. Another use is to bring someones attention to an area in a photograph where something is located, but might not be readably visible in a overall photograph.

It is easy to misuse tent cards when using them to document items in your photograph. I have seen photographs of a two foot table with six tent cards on it. You couldn't identify anything in the photograph because the tent cards covered the field of view. Remember, a crime scene is processed using a systematic approach. Everything you do should be for a reason. They look cool on TV, but they can interfere with your documentation as much as help. Also, keep in mind tent cards are a form of contamination. It is something the ET introduced to the scene. Ensure a set of overall photographs were taken prior to adding the cards to document the scene as it appeared when the ET arrived.

Tent cards are very helpful to draw someones attention to an area in a general/overall photograph. For example, there may be a grass field with discharged cartridge casings in the grass. The overall photograph of the area would show the field and area the casings were located, but you probably couldn't see the casings themselves. The next photo would show the exact same area, but this time with tent cards to show the location of the casings. Now the observer knows there is something in those areas that is important.

If you choose to use tent cards, get the most out of them. Some evidence technicians will always face their cards to the north or another cardinal direction. It provides another reference point in your photographs. You can easily determine which way is north. Blank cardboard tent cards also have benefits. They are disposable so the ET does not have to worry about decontaminating them. Blank cards provide the ability to write whatever you want on the card instead of being restricted to a single number or letter. Directional arrows, evidence information, etc. can be written on the card and will appear in your photo. The plastic yellow cards can also be purchased blank and a white board marker can be used to accomplish the same affect. They are more expensive and you will need to decontaminate/clean them after use. Also, keep any reference numbers you use on the tent cards consistent through the rest of your documentation. It is easier to keep track of items if the number/letter from the photograph is consistently used in the evidence log, sketch/diagram and notes.

Tent cards can be a helpful tool on a crime scene, but they can easily be misused and hurt more than they help. Have a plan.

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