Page left intentionally blank

This magazine is best viewed with the pages in pairs, side by side (View menu, page display, two-up), zooming in to see details. Odd numbered pages should be on the right.
Fall 2012
$5.95 US/$6.95 Can
Solve a complex murder case with a complete series of hands-on forensic lab activities including:

- Blood Spatter
- DNA
- Fingerprint Analysis and more!

New for 2012!

- Fire Debris Analysis
- Glass Fragment Analysis

Visit wardsci.com for the widest selection of forensic activities.
Articles

6 Interview
By Mark Feil, Ed.D.
Robert K. Wittman founded the FBI’s Art Crime Team, and has chased and caught thieves, scammers, and crooked dealers, and recovered priceless treasures. He worked undercover all over the world and even helped expose The Antique Roadshow for fraud. He has advice for teachers who want to make their subjects memorable.

12 Fingernail Identification!
By Herbert Leon MacDonell, Sc.D. h.c.
Fingernails are as individual as fingerprints. Who knew? This lab will let your students explore the phenomenon.

14 Using The Web to Learn Forensics
By Ricky Pelazzo.
Have you ever wanted to study forensics from the big boys? Here’s your chance to do it for free.

16 Insect Lab
By Anthony Bertino and Patricia Nolan Bertino
A really well done entomology lab. Ready to go. Just add bugs.

22 A Very, Very, Hairy Lab
By David Collins, Ph.D.
A great lab about hair, from soup to nuts.

Features
2 Editorial
4 Mini-Mystery
5 Hot Web Sites
32 A Day In The Life Of...
37 Bloomin’ Easy
38 Morgue Guy
38 What’s Going On?
39 Just For Fun
40 Stoopid Crooks
Editorial

We Need You

A little over seven years ago we started this magazine because we were unaware of any resource that helped new forensic teachers get up and running. We’ve tried to address common issues and problems, and provide free, ready to use resources ready-to-use in the classroom. For seven years we’ve been happy to help. But just as we’ve tried to be there for you we’ve come to a point where we now, more than ever, need you to be there for us.

Most of articles and labs come from teachers who are actually teaching forensics. For the rest we’ve been fortunate to find textbook publishers generous enough to allow us to reprint some of their materials. But we need more.

If you have a lab or lesson you’ve developed please send us an email about it. We pay for the pieces we use, and it’s a great way to let people know how you keep your students engaged. After seven years there’s not much we haven’t covered, but that’s okay–after a year or two we’re open to revisiting a topic, especially if you handle the subject differently than the author whose piece we published before.

Your activity, lesson, or lab must be one you developed yourself, but that’s generally the only rule. If you have photos it’s icing on the cake! Just tell us why you developed the activity/lesson/lab, include instructions so other teachers can duplicate your success, and try to keep it in the first person when you’re writing.

When we published on paper we were restricted to 32 pages, including covers. With the advent of going digital we’re easily able to double that. And Issue 16 about fire and explosions, ran 110 pages. We’re committed to bringing you resources you can use in your classroom, but first we have to hear from teachers and professionals. If you’re not sure how to write up a lesson, drop us a line and we’ll work with you to make it the best it can be. We’re at admin@theforensicteacher.com.

Can you help?

Dr. Mark Feil

Volume 7, Number 20, Fall 2012

The Forensic Teacher Magazine is published quarterly and is owned by Wide Open Minds Educational Services, LLC. Our mailing address is P.O. Box 5263, Wilmington, DE 19808. Letters to the editors are welcome and should be sent to admin@wideopenminds.com. Submissions are welcome and guidelines are available, as is a rate sheet for advertisers at our website www.theforensicteacher.com. If you sign up for a subscription you will receive an email when it is ready for download provided your spam filter doesn’t screen it out; sign up at our website. Back issues are available singularly on our website, or all on CD priced as per the website. The Forensic Teacher is copyrighted 2012 Wide Open Minds Educational Services, LLC, all rights reserved. All opinions expressed by contributors represent their own views, and not necessarily the views of the staff or editorial board.

POSTMASTER: Send address changes to The Forensic Teacher, P.O. Box 5263, Wilmington, DE 19808.
**Mini-Mystery**

**A Bad Day for Bernidi**

During a midday visit to the city of Royston, Thomas P. Stanwick, the amateur logician, noticed several police cars at the entrance of Bernidi’s, a small downtown jewelry store. Toying with the tip of his mustache in thoughtful curiosity, he approached and eased his way through a knot of onlookers. His friend Inspector Matt Walker was inside, and he signaled to the policeman at the door to let Stanwick in.

“Hello, Tom,” exclaimed Walker in mild surprise. “What brings you here?”

“I was just passing by,” replied Stanwick. He glanced around the cool, dark interior of the narrow room. “What happened?”

“I was just about to ask Mr. Bernidi to repeat his story to me.” The two turned to the small, white-haired owner, who was leaning against one of the two display counters that ran the length of both sides of the room. His face was streaked with dust, and he looked exhausted.

“I had just stepped into the back,” he said, “when I hear the bell on the front door ring. I come out, and there’s this guy, very well dressed, looking around and coming toward me and the register. ‘Can I help you?’ I say, and he smiles and pulls a gun halfway out of his jacket pocket. A little piece, but I can see it’s real. Then he puts it back, but keeps his hand in there. There’s nobody else around, so what can I do?

“Anyway, he makes me open the register, but I just made a deposit, so there’s only a few bucks. He doesn’t get mad, but takes a piece of clothesline out of another pocket, ties my hands behind my back, and makes me lie down on my stomach behind the side counter here, with my face to the wall.

“It was tight; you can see there’s not much room back there. Then I hear him opening the wood panels—these here, the lower half of the counter—but he finds nothing. I only keep supplies down there. Then he steps across to the opposite counter, pulls out a little burlap sack, smashes the glass, scoops some rings into the sack, and runs out. I get up, see the broken glass, and yell for a cop.”

“What did the man look like?” asked Walker.

“Like I told the officer-big, burly guy, clean-shaven, dark hair.”

“Don’t you have your display glass wired to an alarm?” inquired Stanwick.

“Never got around to it. It’s insured, anyway.”

“Well, thank you, Mr. Bernidi,” said Walker, closing his notebook. “We’ll check around and let you know when we make an arrest.”

“I think you can make an arrest right now,” said Stanwick quietly.

Why is Stanwick so sure?

Turn to page 34 for the solution.

---

Stan Smith is the author of three books of Stanwick mini-mysteries that have been published in nine languages and sold over 120,000 copies. Learn more at www.stanwick-minimysteries.com.
To Mark Kozubowski of Lindsborg KS. He was randomly selected from those who took the time to offer feedback on our website. He’s won a snazzy webcam.

We’ll have more raffles in the coming months. Keep an eye on our website for more information. To be entered all you have to do is click on the raffle link on our homepage and let us know how we’re doing, how can we improve, and what you’d like to see more of. Before each issue we’ll select one name at random.

---

http://news.discovery.com/forensic-science/
A great website with lots of new information.

More forensic news, this time from the New York Times.

http://www.forensicmag.com/news
A free quality forensic publication.

http://forensicnews.blogspot.com/
A forensic blog with a lot to think about.

http://www.forensicsinthenews.com/
Just what the title says. Keep up to date.

http://articles.cnn.com/keyword/forensic-science
It’s from CNN. You know it’s going to be entertaining.

http://www.coldcasecenter.com/news.htm
This site won’t win any awards for being great to look at, but there’s a lot of information here.

A good place for watching a ton of forensic videos.

http://fac.utk.edu/news.html
The best place place to hear news from and about the original body farm.
The Art of the Theft

Robert K. Wittman, founder of the FBI’s Art Crime Team, and for years its only member, has had a career that makes The Thomas Crown Affair look tame. Born into a family of antique dealers, Wittman went undercover armed only with his wits to catch art thieves, scammers, and black-market dealers all over the globe and recover stolen loot. He was responsible for the return of golden armor from an ancient Peruvian warrior king, the Rodin sculpture that inspired the Impressionist movement, the headdress Geronimo wore at his final powwow, and a rare Civil War battle flag carried into battle by one of the nation’s first African American regiments.

Wittman traveled the world to rescue paintings by Rockwell, Rembrandt, Monet, Picasso, and many others, and often worked undercover at the whim of foreign governments. Here in America he recovered an original copy of the Bill of Rights and cracked the scam that rocked the PBS series Antiques Roadshow. We found him at his Pennsylvania office, not far from our own facility. We wanted to find out how he wound up in this branch of the FBI, and what his teachers did to make learning fun for him.

Forensic Teacher: When you joined the FBI, did you have any inkling you were going to be tracking down art thieves?

Robert Wittman: No. When I joined the FBI back in 1988 at the height of Miami Vice TV show, and I thought I’d be breaking down doors and going after drug dealers. In all honesty, when I came to Philadelphia in 1988 I was actually working organized crime. So, I really was involved with breaking down doors for drug dealers in Philadelphia. After 1990 I started working property crime and art crime cases almost exclusively.

FT: This was voluntary?

RW: The first couple of cases I was assigned I was on a property crime squad. And then we were able to smoke them, and as a result the Bureau found out I had a background in it because my parents were in the antiques business, actually in the Asian antiques business.

FT: Okay.

RW: But I didn’t have much background in fine art, so the Bureau sent me to the Barnes Foundation where I got a good basic background in fine art. And once the government sends you to school, the government takes advantage of that.

FT: And, at one time, you were basically it for art crimes for the FBI.

RW: For undercover roles I was the guy doing most, if not all, of the undercover work from 1997 to about 2000 until my retirement.

FT: That must have been exciting, but frustrating to know you were the only one doing that.

RW: It was hectic. One of the rules for the FBI for undercover operators is that you can only work one case at a time. But because of the fact there weren’t a whole lot of people who were doing these types of cases, I was usually undercover somewhere in the world, but only two or three cases at a time. So, I’d have to keep it all straight. It was pretty hectic; it was very interesting.

FT: You were in property, but what was it that made you realize you wanted to keep doing art crimes?

RW: I thought it was important. To me, going after a stolen car or money from a bank robbery is important as well, but I just don’t see how that has an effect on the future. And I think when someone robs a museum or steals art from a home, I think it affects the future if these pieces are gone and just disappear, and they may not come back. And on top of that, these pieces of art that we have, that we’ve kept over the centuries are pieces of human genius. I think it’s important for all of us as a culture to protect these pieces.

FT: I read your book, Priceless, and it sounds exciting working undercover.

RW: It’s exciting in that it’s a job. The use of the undercover technique is like any other. It’s something that you use to chop together evidence. Basically, it’s a complicated technique that is used after everything else has been tried. So, if there’s no other way to do a case, that’s when you go undercover. I was doing hard cases. I wasn’t an undercover agent. What happened was, that was the only way I could solve those cases, by using the undercover technique. But if I didn’t have to I wouldn’t do that, I would just do an investigation with interviews, police reports, hard evidence like fingerprints and that type of thing, and that was the preferred way of working a case. But if you have to go undercover that’s what you have to do.

FT: I feel the same way you do about art, and I wonder, how
many art cases did you work before you realized this was what you were supposed to do?

RW: I think it was around three. At the time we had a museum that had been robbed, and another situation where we’d just gotten some items back, and I remember there was a pair of very, very valuable books and we recovered those. About that point I thought this would be something I would be very interested in doing. And when you say art you have to understand that under the Bureau’s definition of art it’s considered all cultural property.

FT: I’m going to go out on a limb and guess your parents are happy with what you decided to do.

RW: Yes. My mom passed away in June of 2010, and I think she was pretty happy about it, and my dad passed away in March of 1996, and I think they were pleased with the direction my career took.

FT: What about when you were in school? Were you always inquisitive? What kind of student were you?

RW: At school I was the kind of student that the teachers didn’t want to see (laughs). To a certain degree I was precocious, but I did my work. I was always a little bit more interested in having fun at recess.

FT: Throwing baseballs outside the house.

RW: Indeed.

FT: What were your favorite subjects?

RW: I’d say history and English.

FT: Is art a hobby of yours? Do you dabble in it?

RW: I wish I could. I can’t draw a straight line. Maybe one of these days I’ll take a lesson and see if I have any talent for it.

FT: What about forgeries? Are there many of them out there? Have you investigated fakes?

RW: Sure, I did a number of cases involving individuals who were in the business of making fakes.

FT: I enjoyed the chapter in your book about The Antique Roadshow.

RW: That was fraud. They weren’t dealing in fakes, but they were defrauding people.

FT: What were your least favorite subjects in high school?

RW: Math. My brain doesn’t go that way.

FT: But your favorite subjects were history and English. Was it the subjects, or were there teachers who really set you on fire?

RW: I went to Catholic high school and Catholic grade school, so there were nuns, and I think most of them did a pretty good job. There were a couple teachers in high school I really enjoyed.

FT: Did those teachers do anything special to make their subjects really stick in your mind?
RW: I had one teacher named Ken Steiner who was an American studies teacher. He was very interesting; he had a lot of knowledge and made the world of history, especially American history, interesting.

FT: How did he do that? Did he act anything out?

RW: No, he just had a wealth of knowledge. He would tell the background stories, and made it humanistic and much more interesting. For everything in the history books there’s a background story.

FT: What do you think about the CSI effect when it comes to courtrooms, classrooms, forensics?

RW: I think the CSI effect has a very potent effect in the courtroom, especially when it comes to trying to present evidence at a trial. A lot of people don’t realize the CSI you see on television isn’t real life. Some of the things they do on television aren’t even used for evidence. I also think a lot of times the jurors are expecting things to be on videotape, and that’s very difficult as well. Most things aren’t videotaped when we talk about crimes. I think there is a definite CSI effect on jurors, and I think sometimes it’s detrimental to the prosecution’s case because jurors expect too much.

FT: Speaking of CSI, the effect has permeated through to the classroom. Kids want to know how forensics works and they’re often quite startled to find out you can’t do all the forensics and solve the crime 100% in 44 minutes plus commercials.

RW: Sure. People are astounded to find out DNA fingerprinting at the FBI doesn’t happen in a few minutes. It takes much, much longer. Weeks.

FT: So, your favorite teachers brought the subject to life, gave you the back-story, gave you the human interest angle …

RW: Right.

FT: The dirt…

RW: They made the history come alive

FT: That’s neat. What suggestions do you have for teachers besides making the subject come alive?

RW: I think teachers have to have a lot of patience. And I think they have to realize that different children learn at different paces, and you have to adjust your pace to the group. Also, I think it’s very difficult for teachers to maintain the interest every year for themselves. If you’re teaching the same subject year after year, and you’re using the same chapters in the same books, after a while it becomes a rote process. I think it’s good for teachers to every now and then look at the back-stories and try to incorporate those into the textbooks to keep themselves interested as well as the students.

FT: You’re right. My wife gets a little frustrated with me every summer because I’d see something at a yard sale or in a store and I’d get it. She’d ask me what I was thinking, and I’d describe the unit on a particular subject, and how this item would take the lesson to the next level, make it cooler. And we go through this every year. And my lessons keep evolving.

RW: You are probably one of the most memorable teachers at your school because that’s exactly right.

FT: I had so many teachers who were so boring; they were stuck in that rut you just talked about.

RW: Facing a nervous Iraqi thug in a tiny Danish hotel room, Wittman laid $245,000 in cash on the bed—payment for a Rembrandt worth $35 million and stolen at gunpoint during one of history’s most brazen museum robberies. The bust was one of the Art Crime Team’s greatest achievement.

FT: I can’t understand teachers who are content to get their game down, and then do it for 30 years.

RW: Right (laughs). Well, there are a lot of people like that in the world. They go to their job everyday and do the same thing, or close to it, and are bored. How many people do you know who are just waiting to retire? People who are counting down the weeks or days? And they’re counting down their lives. You never want to do that because you should live each day to the fullest.

FT: I had some incredibly boring teachers in high school. When I started teaching I realize if I taught the same way I
was taught we wouldn’t make it to Halloween. So I had to make it fun for me, and it turned out my students got into it too.

RW: Yup. Kids are sponges. They soak up what you give them. If you give them boredom and nothing that’s what they’re going to give back. If you’re excited they will be too.

FT: When students enter my classroom at the beginning of the year they’re already amped up on CSI. All their other science classes tried to fill them up with information. Forensics is different because it requires students to draw from what they’ve learned in other classes and rise to the challenge of putting two and two together.

RW: The CSI effect is detrimental to the courtroom, especially the prosecution. But then again, it’s good for the defendants. So it has two different angles to it. And I think in a classroom the CSI effect is great because it gets the kids interested in science. So, if you show them a guy has been dead for so long because of the beetles in there have gone in and out three times, they have an idea, you know?

FT: Your book, *Priceless*, really made me aware of how little I knew about the art world, and all that goes on in that world as far as crimes go. It exposed me to a hidden world of high stakes, priceless treasures, and the efforts of the FBI to catch those criminals. Anyone reading your book as a result of reading this interview is likely to feel a similar sense of excitement and wonder. So, how does your self-image as an ex-agent and antiquities investigator jibe with the fact that, because of what you’ve written, you’re now a forensic educator?

RW: My reality of the book meshes perfectly with my experiences because it’s what I did. And since I retired in 2008 I probably have 40 cases I’m working on now for the private sector. I’m doing exactly the same thing. And I’m able to do more cases; I don’t have to follow the government’s administrative guidelines.

FT: But anybody who reads your book is likely to come away from it thinking, ‘wow, I didn’t know all that.’

RW: Well, that’s good (laughs). I hope they learned something.

FT: Any more suggestions for teachers who want to make their lessons more interesting?

RW: Every time I get a new case I do some research on the artifact, what it was, find out the background so I can speak clearly about it, become almost an expert on it because I don’t know every artist or what they’ve done. So, I would say the same about teachers. Whatever the subject, learn a little more about it every year, something in the background of that specific item, and convey that to the class. And you’ll keep your enthusiasm up for it.

FT: Well, sometimes schools will tell a teacher what they’re teaching.

RW: Then it’s up to the teacher to find something about the subject they like and bring that out. Even if you don’t like your subject there must be something you find interesting.

FT: What’s that series on TV about the terminally ill chemistry teacher who starts making and selling meth? *Breaking Bad*?

RW: That’s a crazy show, isn’t it?

FT: I’ve never seen it, but I can understand the draw of something like that. Talk about getting into your subject. So,
Assistant U.S. Attorney Robert E. Goldman, who liked to call himself a frustrated history professor, was a kindred spirit to Wittman. Despite the wishes of some narrow-minded supervisors at the Justice Department, he was willing to work with Wittman on tough, esoteric cases—even when the unstated goal of an investigation wasn’t the arrest, but the rescue of stolen piece of art.

The theft of Rodin’s Mask of the Man with the Broken Nose, the sculpture that helped inspire the impressionist movement, launched Wittman’s career in art crime.

**RW:** I think that’s what keeps you young, learning new things that you find cool. And if I was teaching a subject I didn’t like I’d see about teaching something else.
Everyone is aware of the uniqueness of fingerprints, especially as a method of identifying an individual in the field of criminalistics. However, few are aware fingernails also contain unique identifiers that can be used to match individuals and evidence. This activity will allow your students to prove this to themselves.

Both the convex and the concave surfaces of human finger- and toenails possess easily recognizable longitudinal striations. Marking on the underside (concave) surface is obvious as this side retains greater detail due to less random abrasion than occurs on the upper (convex) surface of the nail.

Fingernails are formed when epidermal cells in certain areas of the body (finger and toenail regions) enucleate themselves, dispose of all other cellular organelles, and fill with beta sheets of the tough protein keratin. This process is genetically ordained in those regions, and fingernails generally not only grow about half as fast as hair, but grow faster on longer digits. The process of keratinization can also be stimulated by prolonged stress on the epidermis. As each layer of skin is sloughed off, the keratinized cells move upward to the surface of the skin. This is how a callus is formed. When the stress is removed the callus are eventually replaced by normal tissue unless, for example, the musician keeps playing.

As the hardened nail is extruded from under the lunula (commonly known as the moon), parallel ridges of the nail bed, called *cristae matrices unguis*, engrave their reverse image across the underside of the nail in the form of minute grooves.

The highly individual random pattern of the nail bed imparts unique parallel surface nail striations for each individual. This striation pattern is not significantly altered throughout life as long as no damage occurs to the nail bed. With advancing age, in fact, the pattern becomes intensified since the depth of striations increases.

The individual character of fingernail striation has previously been discussed many times in the literature and examples can be found with a simple Google search. Striations have also been used as a means of personal identification in court testimony.

This article will describe improved methods of sample preparation and examination of fingernails for their longitudinal striations and their individual and unchanging nature for forensic application. It also includes an acceptable method of sample preparation not requiring laboratory equipment.

**Collection and Preparation of Standards**

Nail clippings from each finger of several individuals should be obtained at varying times during the school year to compose a collection of specimens. The ideal nail clipping will be 2-3 mm in length. It should be placed in a labeled, small, paper, coin envelope.

The initial preparation of each fingernail can be done when it is collected, or when all samples have been harvested. Alternatively, it can be done a couple days before the teacher is ready to do the lab.

The preparation involves simply soaking it overnight in hot soapy water. The next day rinse twice with warm water and place in a folded filter paper (but a piece of a kitchen towel works just as well). The fingernail within the filter paper is then placed between two 1” x 3” microscope slides and held flat with two spring clips as shown in Figures 1 and 2.

**Figure 1. The fingernail is between the folded (and then trimmed) filter paper.**

**Figure 2. The fingernail as it would appear without the filter paper.**
Traditionally, the scanning electron microscope was used as the instrument for viewing fingernail striations. This required a metallic coating on the sample’s surface. The application of such a coating also greatly increased the resolution of the longitudinal striations when observed with a light microscope. A translucent fingernail under oblique illumination reflects light upward as it strikes the ridges, but the light also diffuses downward into the nail. The result is the valley becomes partially illuminated, reducing or eliminating the contrast all together. The lack of satisfactory method for observing longitudinal striations in the past has prevented much of their detail from being observed. In contrast, a metal-coated fingernail reflects light from the ridges, but does not permit light to diffuse down through the opaque metal coating into the body of the fingernail. Consequently, excellent contrast is achieved. For this reason, samples to be analyzed under oblique lighting will first be given a metallic coating.

Like an electron microscope, however, the machine needed to lay down a metallic coating on a sample costs more than the entire budget of many schools. Fortunately, an inexpensive solution is at hand.

Once the fingernail has dried, it will remain flat long enough to glue it to one of the glass slides (with a minimum of glue). It is essential that the underside (concave) surface is uppermost for examination. Again, clamp the two slides together using the spring clamps and allow the glue to set. Be very careful to make sure no glue oozes around the edge of the nail or you risk gluing both slides together.

After the sample slide is glued, remove the upper slide and carefully spray a very thin coating of a metallic spray paint at a distance of at least twelve inches so the mist falls on the nail surface as though it were raining. I use Premium Decor, Metallic Spray, PDS-93, Antique Gold shown in Figure 3 as it gives good results. It makes the fingernail opaque and the ridges highly reflective. No doubt similar metallic spray paints would work equally well.

Figure 3. This paint makes the fingernail very highly reflective. Do not use too much, you can always spray it again.

When metalized fingernails are placed under a comparison microscope, matching longitudinal striations is easy. Usually, the angle of incident illumination is approximately ten degrees.

Another way to match the striations is simply to take photomicrographs of the two fingernails, print them out so they are at the same magnification, and then cut the photographs so they can be compared.

Results

Longitudinal striations are usually visible to the naked eye, yet they are difficult to photograph under oblique lighting because of their translucent nature.

The four clippings shown in Figure 4 demonstrate the remarkable consistency among fingernails taken at roughly three-year intervals. These metalized fingernails span a decade with a 1963 cutting at the top and a 1973 cutting on the bottom. Certainly, the reproducibility of these human tool marks is evident. A clipping taken from the same finger in 2010 was compared to these four cuttings and the agreement was also perfect.

Figure 4. Fingernail clippings taken over a ten year period reveal perfect agreement in their longitudinal striations.

Although the resolution with the samples that were spray painted does not compare to the metal deposition results shown in Figure 4, it is still good enough for comparison purposes. If a good quality photomicrograph cannot be taken with grazing illumination you can also use this quick-and-dirty method: simply place the fingernail on your copier/printer and scan it. Be sure to have the striations aligned so they are at the top of the scanner. Crop just the fingernail and should the results not look good rotate the specimen 90 degrees. A spray-painted fingernail is shown in Figure 5.

Fingernails (Continued on page 34)
Using the Web to Learn Forensics

By Ricky Pelazzo

This time the subject of this column isn’t what you can do to make your forensic class cooler, how you can approach forensics with a cross-curricular bent, but on how you can make yourself more confident to teach it. We received an email recently asking how readers can improve their knowledge of forensics without leaving their jobs to attend degree programs, or pay hefty tuition to a local center of higher learning.

And we’ve got answers for you, ways you can learn more about forensics for free. They’re self-paced and in-depth.

If you come across any others please send them our way. We’d like to compile a list as a resource for our readers. In the meantime, enjoy!

https://www.forensiced.org/index.cfm
http://www.forensic-training-network.com
http://www.dna.gov/training/
http://www.nij.gov/training/forensic.htm
https://www.forensiced.org/training/alltraining.cfm
http://www.nfstc.org/resources/free-online-training/
EXPERIENCE

THE FIELD OF

FORENSICS

CSI:
THE EXPERIENCE

VISIT CSI: THE EXPERIENCE WEB ADVENTURES
HTTP://FORENSICS.RICE.EDU

WHAT TEACHERS ARE SAYING

• “I AM DELIGHTED TO HAVE FOUND YOUR WEBSITE. IT BRINGS ALL THE CONTENT WE TEACH TOGETHER IN SUCH A REAL-LIFE WAY. IT’S FANTASTIC! THANK YOU FOR AN AMAZING RESOURCE!”

• “I FOUND THIS A FASCINATING SITE. I WENT THROUGH THE FIRST CASE BECAUSE I AM ASSIGNING IT TO MY STUDENTS AS PART OF A CSI UNIT. I CAN’T WAIT TO DO THE OTHER TWO CASES. THANK YOU FOR MAKING SCIENCE FUN.”

This work was supported in part by a grant from the National Science Foundation to the Fort Worth Museum of Science and History.
A Lab So Buggy It Should Come With A Horse

Anthony Bertino and Patricia Nolan Bertino, authors of *Forensic Science Fundamentals & Investigations*, and publisher Cengage Learning have graciously given us permission to reprint these pages.
ACTIVITY 11-3  
INSECT STUDY

Objective:

*By the end of this activity, you will be able to:*  
Study the behavior and life cycles of insects associated with decomposition.

Introduction:

The blowfly is often the first insect to reach a corpse and lay its eggs. Use Figures 11-17 and 11-18 as references in your study of blowfly development.

Materials:

Data Table: Insect Study  
1 lb. cottage cheese or pudding containers  
raw calf liver (1 lb.)  
sharp knife  
warm (or hot) day (but not windy or too hot!)  
thermometer  
plastic kitchen-sized garbage can with a flip top  
plastic garbage bag liner  
another cardboard box to cut up into smaller pieces  
small cardboard box large enough to hold the plastic cottage cheese container and fit inside a garbage can  
digital camera (optional)

Safety Precautions:

Wash your hands after handling the flies.

Procedure:

Part A: Setting up the Fly Incubator

1. Line a plastic kitchen-sized flip-top or swinging-lid garbage can with a plastic liner.  
2. Cut up a cardboard box and fold the cardboard pieces in half so that the pieces of cardboard don’t lie flat.  
3. Add the folded cardboard to the bottom of the kitchen garbage bag so that the garbage bag is one-third full. This is important because, during the last stage, the larvae will migrate away from the food to a dry area. If you have ample cardboard pieces available, the larvae will have many areas to hide. (Depending on the size of your garbage can, you might want to add an empty box on top of the cardboard pieces to elevate your fly assembly so that you will have easier access to the fly dish shown on the next page.

Part B: Preparing Your Liver Dish

1. Add raw liver in a plastic cottage cheese container.  
2. Cut some slices into the surface of the liver to make gashes within the liver to resemble an open wound.
Part C: Obtaining Flies
1. Leave your open liver container in an area where you want to collect flies. The odor of the liver should attract flies within minutes.
2. Collect flies on a warm day. If it is too cold or too windy, flies will not lay their eggs. Avoid taking fly collections on very windy days or very hot days.
3. Leave the liver container in the open area for at least one hour. Place the dish in an area that will not be disturbed by dogs or cats.
4. Look for very small, white clusters of fly eggs on top of the liver.

Part D: Incubation of Fly Eggs
1. Place the liver container and fly eggs into a small cardboard box. Be sure the cardboard box and the plastic liver dish will fit in the garbage can.
2. Allow the flip-top cover of the garbage can to close. This will still allow other insects to enter the dish while keeping some of the odor inside the garbage can.
3. Keep the garbage can in an area that is not in direct sunlight. Because some odor will be given off, place the garbage can in an area where the odor will not present a problem to others.

Part E: Observations and Data Collection
1. Make observations each day and record on your data table until adult flies have emerged.
2. Take a digital photo of the liver container and any organisms near or on the container. Note: Larvae tend to move away from light, so be ready to quickly take pictures when you view your liver dish.
3. Complete the data table as you make your daily observations. Record the date and time of your daily collections. Record the
temperature inside the fly incubator (garbage can). Make other observations such as the color, size, and behavior of your insects.

**Part F: Report**

**Option 1**
1. Create a PowerPoint presentation of the insects collected on the liver. Include your digital photos taken of the different stages of the insects you observed. If you do not have a digital camera, obtain pictures of the insects from the Internet.
2. Include the name of all insects and correctly identify their stage of development. Indicate the preferred food source for each of the insects.
3. Do not place too many words on each frame.

**Option 2**
Write an autobiography from the viewpoint of the fly as it develops from an egg into adulthood. Include in your diary:
- Physical description of the insect at different stages of development
- Physical description of the insect’s environment
- Descriptions of when the insect feeds or does not feed
- Description of the type of food it is eating
- Descriptions of any “travels” or migrations and movements of the insect
- Photos from your digital pictures taken during the study

Your information should be scientifically correct, but feel free to be creative in your insect diary!

**Option 3**
Prepare a scrapbook from the viewpoint of the insect as it progresses through its different stages. Use the photos from your study. Add notations indicating the:
- Physical descriptions of the insect at the different stages of development
- Physical descriptions of the insect’s environment
- Descriptions or comments on the insect’s source of food at different stages
- Descriptions of any “travels” or migrations of the insect

Your information should be scientifically correct, but feel free to be creative with this scrapbook!
ACTIVITY 11-4  Ch. Obj. 11.5, 11.8, 11.9, and 11.10

ESTIMATING TIME OF DEATH USING INSECT, ALGOR, AND LIVOR MORTIS EVIDENCE

Objective:

By the end of this activity, you will be able to:
Estimate the time of death using insect, algor, and livor mortis evidence.

Materials:

paper
pen or pencil
calculator
Rigor Mortis Reference Table: Refer to the tables distributed by your teacher (Figures 11-8 and 11-9)
Insect Reference table: Refer to the table distributed by your teacher (Figure 11-7).

Safety Precautions:

None

Procedure:

Working in pairs, answer the following questions.

Questions

1. A naked, male corpse was found at 8 a.m. on Tuesday, July 9. The air temperature was already 26.7°C (81°F). The body exhibited some stiffness in the face and eyelids and had a body temperature of 34.4°C (93.9°F). Livor mortis was not evident.
   a. Approximately how long ago did the man die?
   b. Justify your answer.
   c. Would clothing on the body have made a difference in determining the actual time of death? Why or why not?

2. At noon, a female corpse was found partially submerged on the shore of a lake. The air temperature was 26.7°C (81°F), and the water temperature was about 15.6°C (61°F). Rigor mortis was not evident, and the body’s temperature was 15.6°C. Livor mortis showed a noticeable reddening on the victim’s back that did not disappear when pressed. Bacterial activity was not significantly increased, and the lungs were filled with water.
   a. Approximately how long ago did the woman die?
   b. Justify your answer.

3. The body felt cold to the touch. The thermometer gave a reading of 21.1°C (70°F) for the body temperature. No rigor mortis was evident, but livor mortis had set in with blood pooling along the back. There was no noticeable increase in bloating or bacterial activity in the digestive system and no putrefaction. The man had been dead for more than 48 hours. How is that possible?
4. The dead body contained evidence of blowfly infestation. The larvae were collected and reared in a lab in an environment similar to the conditions surrounding the dead body. Adult flies mated and laid eggs. Data was collected, noting the time required to progress from one stage to the other and recorded in the following Data Table.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Accumulated Time Since Egg Was Laid (Hours)</th>
<th>Accumulated Time Since Egg Was Laid (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egg</td>
<td>Egg laid minutes after death</td>
<td>0</td>
</tr>
<tr>
<td>Larva stage 1</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>Larva stage 2</td>
<td>60</td>
<td>2.5</td>
</tr>
<tr>
<td>Larva stage 3</td>
<td>96–120</td>
<td>4–5</td>
</tr>
<tr>
<td>Pupa</td>
<td>192–288</td>
<td>8–12</td>
</tr>
<tr>
<td>Adult</td>
<td>432–576</td>
<td>18–24</td>
</tr>
</tbody>
</table>

a. Record the estimated time since death if the insects recovered from the dead body were in each of the stages below: egg, larva 1, larva 2, larva 3, pupa, adult.

b. Record the estimated time since death if insects were in the following stages: Some eggs and some larva stage 1, some adults and some pupae, some larva found in stage 2 and stage 3.

5. A dead body of an elderly gentleman was discovered in an abandoned building. Blowfly pupae were found on the body. A missing person’s report was filed for an elderly gentleman who had wandered away from home just two days before. The body found was similar in age, height, and weight to the missing person. Could this possibly be the same person as the person described in the missing person’s report? Explain your answer.

6. The police received a report about a body found in the woods behind the local shopping center. The forensic investigator collected 5 different types of living insects on the man’s body. It’s important to stress that investigators found all 5 insects alive on the body at the same time. The insects were sent to the forensic entomology lab, where they were raised under similar conditions to those found around the dead body. The following chart describes the life cycles of each of the five different types of insects found on the dead body. How long has the man been dead? Justify your answer.

<table>
<thead>
<tr>
<th>Insect</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blowfly</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Species A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Species B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Species C</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Species D</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

0 = no evidence of fly species; 1 = evidence of egg, larva (maggot) or pupa
A Very, Very, Hairy Lab

Dr. David Collins wrote the lab manual that accompanies *Investigating Chemistry* by Matt Johll. Dr. Collins and publisher W. H. Freeman have graciously given us permission to reprint these pages.
Experiment 24
Hair
Instructor Notes and Answers

Part A Human Scalp Hair Comparison

- Encourage the students to take their time and appreciate the different characteristics of scalp hair.

- Students should be able to gain an appreciation for the natural variation present in their set of standards.

- Medullation is the distribution of the medulla (the darkened region typically running the length of the hair in its center under transmitted illumination). The medulla may be continuous, interrupted (more medulla than not), fragmented (more open space than medulla), or absent.

Part B Animal Hair Identification

- You may choose to use other animal hairs than those suggested.

- Encourage the students to take their time and gain an appreciation for the vast, yet often subtle, differences present in animals hairs.

- Some features of the animal hairs chosen for this lab include:
  - Cow: large cortical fusi (ovoid bodies), elongated root
  - Cat: “whisker” root, uniserial ladder medulla (doughnut-shaped cells), prominent scales, very fine
  - Dog: “spaded” root, may have a similar appearance to human scalp hair with possible greater medullation
  - Mink: two scale patterns (i.e., “petal” at the proximal end and “imbricated” at the distal end). This is different from human since human scales are only imbricated.
  - Deer: very coarse, very broad “lattice” medulla covering the majority of the diameter of the hair, undulated, banded tip, and hourglass root
  - Rabbit: very fine, uni- and multi-serial ladder medulla, dog bone–shaped cross-section

Note: many of the hair types used in this lab can be obtained from pet stores and taxidermy shops.
Experiment 24 Hair Answers

4. Based on your understanding of hair analyses, discuss what can be done with a single hair found at a crime scene if no reference standards are available.

   The hair can be analyzed for species identification. The hair may also be scrutinized for any unique characteristics.

5. Explain why hair is usually only considered class evidence. Discuss when it might be considered to contain individual characteristics.

   Virtually all hair analysis techniques only probe the hair sample for class characteristics. No class characteristic can exclusively link a hair to a single person. Hair may contain individual characteristics if it was dyed in a unique manner, if it contained a rare disease or abnormality, or if the hair sample contained a secondary item of evidence (e.g., smoke particulates unique to a specific location). Nuclear DNA is the only sure individual characteristic.

6. Theorize what potential problems may arise when attempting to identify a hair type (e.g., determine species). What other potential problems may arise when performing a hair comparison?

   It is anticipated that the students will brainstorm. Answers may include:
   a. hair has been smashed or damaged
   b. hair has been burnt
   c. hair offers no unique features for determining somatic location or species
   d. hair is very short
Experiment 24
Hair

Purpose
To become familiar with the microscopic characteristics of hair that allow for comparison. Students will also become familiar with the unique microscopic features of certain animal hairs (e.g., cow, dog, cat, deer, and mink) distinguishing them from human hairs.

Time Duration 2 – 3 hours

Materials
Obtain the following materials:
1. Six scalp hairs (supply your own)

The following materials and chemicals will be supplied as needed:
1. Compound/biological, stereoscopic, and polarized light microscopes
2. Microscope slides
3. Microscope slide covers
4. Permount™
5. Xylene
6. Animal hairs (i.e., cow, dog, cat, deer, and rabbit)
7. Clear fingernail polish
8. Double-stick tape

Introduction
On average, 100 scalp hairs are shed from the human head daily. In addition, many crimes involving violent acts lead to forcibly removed hair. Such occurrences contribute to the relative abundance of hair at a crime scene. Hair is very robust and often remains unchanged for years after removal. Therefore, the majority of hair found at a crime scene, of course, may have nothing to do with the crime committed. In addition, due to the relatively miniscule nature of hair as evidence, the location of hair is frequently difficult to ascertain. And once found, the significance is often elusive even after a laboratory analysis.

Typically, hair analyses are performed by comparing several control hairs of a suspect or victim to those found at a crime scene. Comparisons are rarely definitive and hair is commonly considered class evidence. Individualization may only be achieved through a positive nuclear DNA analysis of DNA extracted from adhering follicular tissue or hair root.
Procedures

Part A Human Scalp Hair Comparison

1. Obtain six scalp hairs from your own head by either finding loose hairs or plucking. Preferably obtain samples from different locations on the scalp.

2. Mount three hairs on separate microscope slides using xylene and Permount™ in the same fashion as described in Experiment 23. Mount the other three samples using double-stick tape.

3. View each sample separately. Examine each hair for undulation (waviness), length, abnormalities, medullation (what the middle portion, i.e., the medulla, of the hair looks like), tip and root appearance, color treatment, and pigment distribution. Not all examinations will require the use of the microscope (e.g., length). Examine the Permount™ samples using the compound/biological or polarized light microscope and the double-stick tape samples using the stereoscopic microscope. Record your observations in your worksheet.

4. Find the individual in the lab that has hair most similar to yours. Exchange one Permount™ slide and one double-stick tape slide. Compare these unknown samples to your reference samples. Can you distinguish them? Do they appear to share a common origin? Record your observations.

Part B Animal Hair Identification

1. Mount the following animal hairs separately using xylene and Permount™ on individual microscope slides: cow, dog, cat, deer, and rabbit. Examine each under the compound/biological or polarized light microscope looking for characteristics distinct from human hairs (e.g., medullation, root appearance, etc.). If you have difficulty finding the medulla, use the polarized light microscope. The cortex is birefringent, while the medulla is not. The medulla typically appears black when using transmitted illumination. Record your observations.

2. Mount a deer hair sample on a microscope slide using double stick tape. Examine the hair under the stereoscopic microscope. Record your observations.

3. Make a scale cast of both a human hair and a mink hair using clear fingernail polish. Paint a thin coat of fingernail polish on the microscope slide. Carefully place the hair on the microscope slide, making sure it makes contact with the polish. Wait approximately 5–10 minutes for the polish to dry. Then carefully remove the hair. Examine under the compound/biological microscope. Record your observations.

4. Clean up when finished.
Experiment 24
Hair Worksheet

Results and Observations

Part A Human Scalp Hair Comparison

- Using the stereoscopic microscope, **record** and discuss the range of length, undulation, color, and any abnormalities found in your three scalp hairs (make sure you examine the full length of the hair). In a separate paragraph, discuss the natural variation of these features and the potential to use them in a comparison analysis.

- Using the compound/biological or polarized light microscope, **record** and discuss the range of pigment distribution and medullation. In a separate paragraph, discuss the natural variation of these features and the potential to use them in a comparison analysis.
● Using both microscopes, **record** and discuss the range of tip and root appearance. In a separate paragraph, discuss natural variation and the potential to use these features in a comparison analysis.

● Discuss the microscopic comparison of a single hair from an individual with hair macroscopically similar in appearance to yours. Your discussion should include observations using both microscopes and whether or not hair properties of the samples fell within the natural variation of your hair. Could you distinguish the sample from your hair? Support your answer with observations made above.
Part B Animal Hair Identification

- Compare the macro- and microscopic similarities and differences between cat and rabbit hair.

- Compare the macro- and microscopic similarities and differences between dog and cow hair.
o **Record** your observations for both deer preparations here. Discuss the unique characteristics of deer hair in comparison to the previous samples.

o **Record** your scale cast observations for human and mink hair, describing the scale pattern of each. Discuss how you can distinguish between human and mink hair based on your scale cast observations.
Name: ____________________________       Date: ________________

Experiment 24 Hair Questions

1. Based on your understanding of hair analyses, discuss what can be done with a single hair found at a crime scene if no reference standards are available.

2. Explain why hair is considered class evidence. Discuss when it might contain individual characteristics.

3. Theorize what potential problems may arise when attempting to identify a hair type (e.g., determine species). What other potential problems may arise when performing a hair comparison?
A Day in the life Of...

A Latent Print Examiner

By Bob Garrett

How many years have you been investigating latent prints?
32.

Do you have a specialty as a latent prints examiner?
No.

Do specialties exist?
Not formally. Some agencies/labs have a division of labor where one group of examiners develops prints and another group does the actual comparison. There may also be another group that just enters unidentified prints into the automated database for searching (AFIS). Sometimes all of these examiners are qualified to do all aspects of the job and other times they are trained for their specific function. Those that do comparisons require the most extensive training.

What education does one need to get into the field?
A high school diploma is really the only education one needs to get started since there is no formal academy for fingerprint examiners. However, with the ever increasing emphasis on the scientific aspects of the discipline, and especially for laboratories, a BA or BS may be required. The competitive nature of the workforce may mean that having a college education would be used to filter applicants.

Where does one go for training?
Most training is part of a formal process in place at the agency or lab that involves classes provided through private or government offerings, on the job training, individual research and mentoring with an experienced examiner. Some college curricula provide introductory instruction and some lab work.

How long does training last before one is qualified to work independently?
Usually one to two years depending on the program in place at the agency.

Who do latent prints examiners work for?
They work for law enforcement agencies, forensic laboratories, and private contractors.

What is your official job description?
Since I am not currently part of an agency or laboratory system, I do not have a job description. But here are some examples:

From the US Army Crime Lab:
Latent Print Technical Advisor - The primary purpose of this position is to serve as the technical authority for the EFD Latent Print examination functions and operations; as such, serves as an authoritative consultant to the Chief, Expeditionary Forensic Division (EFD), and as Latent Print technical leader for advising Expeditionary Forensic Laboratory (EFL) latent print examiners. As a Master Forensic Examiner is skilled in the performance of expert examinations; and in providing expert formal testimony in courts of law on cases ranging from the simplest to the most difficult or complex, assist in the US Army Criminal Investigative Laboratory (USACIL) expeditionary mission to support DoD units and other requesting agencies receiving USACIL’s forensic support in wartime and Other Contingency Operations (OCO). Provides and facilitates technical advisory and support to latent print examiners assigned in split-based operations of forward deployed laboratories supported by reach-back operations. Has oversight of protocol development and revision, training, quality assurance, safety and proficiency testing for all elements of the EFD. Oversight and documentation of all latent print validations, audits and accreditation processes. Oversight and review of all documentation pertaining to forensic examining supplies, reagents and reagent formulations. Approve and document any variations in the EFD’s published latent print protocols and procedures.

From San Diego:
Latent Print Examiner I - Latent Print Examiner I positions perform routine examinations of latent finger, palm and foot prints to determine quality and identity; perform routine work in the comparison of known prints of suspects with latent prints; prepare and enter latent prints into an Automated Fingerprint Identification System (AFIS/IAFIS);
prepare digital photographs, charts and other materials for presentation of evidence in court; testify in court; maintain logs and records of examinations performed; and perform other duties as assigned.

Latent Print Examiner II - Latent Print Examiner II positions evaluate latent prints to determine quality and identity; prepare and enter latent prints into an Automated Fingerprint Identification System (AFIS); compare known prints of suspects with latent prints to make positive identification; prepare photographs and other material for demonstration of evidence in court; serve as an expert in court on all phases of latent print identification; classify fingerprints; maintain logs and records of examinations performed; and perform other duties as assigned.

NOTE:
Employees who obtain and maintain Latent Print certification through the International Association for Identification (IAI) are eligible for 5% additional pay.

How does one investigate a scene for latent prints? What do you look for? How?
An examiner can’t just go into a room and start flinging fingerprint powder around. You have to know something about the crime scene and what occurred. In this way you can start your search for prints intelligently and efficiently. Some of this knowledge comes from other investigators or witnesses on the scene and some comes from experience and training. The search for latent prints can be done simply by applying fingerprint powder to a surface likely touched by the intruder. Some agencies go high tech and use a forensic light source or laser to scan the area for prints. Another device uses short wave ultraviolet light to visualize latent prints.

What types of clues lend themselves really well to latent print evidence?
I should change “clues” to evidence. Smooth surfaces are best with glass being the best surface for retaining and developing prints. Some porous surfaces are also good for retaining and developing prints such as printer or copy paper and first class envelopes. The smoother the surface, the better the chance of developing identifiable prints.

How long does an investigation typically take?
That depends on the amount of items to be processed and the number of identifiable prints that are developed and whether or not there are named suspects or if the prints have to be searched through a fingerprint database. An examination in which no prints of value developed could take an hour. An examination with numerous items to be processed and many prints to be compared could take days.

Do you do more than the job requires? Please describe.
I do. Because of my background as a crime scene investigator I am able to recognize the value of evidence and direct my investigation in a more productive direction than someone trained only as a fingerprint examiner. It is sometimes productive to discuss the evidence with the investigating officer to discover those items which may yield good evidence as opposed to things that were collected just because they happened to be at the crime scene.

What is a typical day like for an examiner?
This is hard to pin down because of the many different situations in which examiners are employed. For some it may be going through a stack of cases that need to be compared. For others, it may mean reviewing evidence and deciding which processes to use. And, of course, some examiners will go to crime scenes to search for prints. Some examiners may even be detailed to the local morgue to fingerprint unidentified bodies or victims of crimes.

How do you know a scene is going to be difficult to process?
What makes a scene difficult will vary. Sometimes it’s the environment (indoors vs. outdoors, weather, parking lot vs. junk yard, etc. Other times, it’s the number of people who have gone through or were at the crime scene. The crime scene being set on fire or otherwise damaged, either intentionally or accidentally, are factors that will also influence the task.

How do you know a scene will be simple to process?
There will be a minimum of evidence and suspects.

What hours does a latent print examiner work?
Most work a regular schedule of 35-40 hours. Some may be called back to work after regular hours if an emergency arises.

Are working conditions dangerous?
Generally, no, at least not in controlled conditions such as a lab. In the field there is always the chance that the perpetrator may still be close by, the crime scene may be structurally unsound or involve dangerous items such as chemicals found in a meth lab.

Do you work alone? If not, with who?
Most examiners work cases alone although they may seek assistance for larger scenes and cases. There are others who work along side the examiner but they are working on their cases. Examiners will check each other’s work as part of a quality assurance program.

What do you wear to work?
Those that do not work in uniformed divisions will generally wear business casual attire.

Does one case stand out in your mind as being particularly difficult?
Bloody scenes have the problem of being able to collect blood specimens for DNA testing, documenting blood spatter

A Day in the Life (Continued on p. 34)
A Day in the Life (Continued from p. 33)

for analysis and sometimes waiting for blood to dry before proceeding with further processing. Many times you will have to photograph what you can and then wait for potential evidence to stabilize before further processing.

What kind of demand is there for latent print examiners?
This can be cyclical. There are usually employment opportunities so long as one is willing to relocate.

What type of person would be well suited for this job?
Someone who is methodical in their thinking and ways of doing things. There is no easy way of doing things or shortcuts to take. Failing to follow established protocols can lead to problems down the road when your work is reviewed or you are challenged in court.

How much testifying does the job require?
Most cases do not go to trial. But serious cases will undoubtedly go to trial and the examiner will testify as to what they did, how they did it, and the basis for their conclusions. They will also be subject to challenges from the defense. Some may go to court to testify in simple cases, such as whether a person in custody is the person whose fingerprints are on file.

What do you like best about the job?
The intellectual and practical flexibility that goes with being an expert. Someone isn’t always telling you what to do and how to do it. It is also satisfying to make meaning of the evidence collected and use it in the furtherance of justice.

What do you like least?
Managing expectations. Some people think that just because someone touched something that you can develop an identifiable print from that object or that if you do develop an identifiable print, that particular portion of the friction ridge skin has been properly recorded or stored in a database for searching.

What is it about the job that made you stick with it for so long?
When you find your niche, you stick with it.

Mini-Mystery Answer

A Bad Day for Bernidi (page 4)-Stanwick suspects Bernidi himself. According to Bernidi’s story, he lay down in the narrow space behind one of the display counters. His face was to the wall, and the lower wooden panels of the counter would have obstructed his vision even if he had turned. Since he supposedly did not arise until after the thief left, he could not have known that the thief used a burlap sack. Business had been bad for Bernidi. He fabricated the entire robbery for the insurance money and was sent to prison for his trouble.

Fingernails (Continued from page 13)

![Figure 5. Striations visualized by spray-painting with a metallic paint.]

Discussion

The value of fingernail individuality as physical evidence should be more broadly acknowledged. Fingernails have been broken and left at the scene of a burglary in one case, and carried away in a trouser cuff following an assault in another. The burglar even left his fingernail in a glove indicating its specific origin.

Fingernails could be of assistance in identifying a body long after fingerprints are unobtainable since they possess greater resistance to decomposition. However, under these conditions, they are like fingerprints; a prior specimen of that individual’s fingernail must be in existence for comparison purposes.

It is interesting that both fingerprints and fingernails are better than DNA because the DNA of identical twins is the same whereas their fingerprints and fingernails are not.

Identification or exclusion of individuals using the longitudinal striations of fingernails has not been a frequent occurrence in the courts. The most recent case was in October 2007 Texas v. Pinkerton and Hartsfield wherein the author testified for the prosecution that a fingernail match offered by the defense was not accurate. After his testimony the first defendant confessed to five homicides and the second was found guilty in his trial.
Do you have an idea for an article?

Would you like 30,000 educators to see what you’re doing right?

Please, send us a note about what you do. We’d love to publish your experiences and lessons. Plus, you’ll get paid.

admin@theforensicteacher.com

By the Numbers:

733 Pages
254 Articles
84 Labs/Activities
16 Back Issues
3 clicks to order
1 CD
0 shipping fee
$29.95 (New Price)
Free Issue

Free Subscription

Just sign up. Period.

Are you on Facebook?

If you like our magazine find us there and you’ll get updates, all the latest developments, and not have to worry about your spam filter keeping us from reaching you with our emails.

Do you have a lab your students love?

Want to get paid for sharing it?

Email us, tell us about it!

admin@theforensicteacher.com
Bloomin’ Easy!

One of the best things about teaching forensics is watching your students mature intellectually. Benjamin Bloom first published his taxonomy of thinking skills in 1956. As teachers we have an obligation to help students learn to use their minds in more powerful ways. The chart below lists suggestions for you to push your students mentally to higher places. Give them a try; often the difference between an easy forensic assignment and a challenging one is what you ask of your students.

<table>
<thead>
<tr>
<th>Level</th>
<th>Type of Activity or Question</th>
<th>Verbs Used for Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest level</td>
<td>Knowledge</td>
<td>define, memorize, repeat, record, list, recall, name, relate, collect, label, specify, cite, enumerate, tell, recount</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>restate, summarize, discuss, describe, recognize, explain, express, identify, locate, report, retell, review, translate</td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td>exhibit, solve, interview, simulate, apply, employ, use, demonstrate, dramatize, practice, illustrate, operate, calculate, show, experiment</td>
</tr>
<tr>
<td>Higher levels</td>
<td>Analysis</td>
<td>interpret, classify, analyze, arrange, differentiate, group, compare, organize, contrast, examine, scrutinize, survey, categorize, dissect, probe, inventory, investigate, question, discover, text, inquire, distinguish, detect, diagram, inspect</td>
</tr>
<tr>
<td></td>
<td>Synthesis</td>
<td>compose, setup, plan, prepare, propose, imagine, produce, hypothesize, invent, incorporate, develop, generalize, design, originate, formulate, predict, arrange, contrive, assemble, concoct, construct, systematize, create</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
<td>judge, assess, decide, measure, appraise, estimate, evaluate, infer, rate, deduce, compare, score, value, predict, revise, choose, conclude, recommend, select, determine, criticize</td>
</tr>
</tbody>
</table>

Chart courtesy of Dr. Alicia T. Wyatt, McMurry University, Abilene, TX
What’s Going On?

Ask the Morgue Guy

Q. I have a student who thinks he’s Jeff Dunham the ventriloquist, and has decided to practice in my class. We’re doing a unit on anthropology and this student looks forward to getting his hands on a skull (we have four, one from each race plus Australian Aborigine). Each time one is passed to him or he has the opportunity to handle one because of his proximity to it he throws his voice in an ethnic accent to match the ancestry of the skull. I’ve spoken to him about being distracting, but this only seems to egg him on. The trouble is he’s really funny. Suggestions?

David Roberts, Canton, ND.

A. You mean besides letting us know when his HBO comedy special will air? Pull the student aside and let him know you enjoy his sense of humor, but don’t appreciate it during class because of the disruption. Make a deal with him: if he can keep his outbursts to himself for the first four days of the week, you’ll let him vent clean humor for five minutes on Fridays. If he isn’t sure he wants to go along with this proposal, make him aware of how serious you are about keeping distractions to a minimum. Tell him you enjoy his humor, and it will make you sad to see his schedule changed from forensics to a study hall.

Below are only some of the great training offered by the American Academy of Forensic Science’s website (www.aafs.org). Please note: all email and website links are active.

OCTOBER 2012

1-5 Basic Facial Reconstruction Sculpture Workshop To be held at the University of Oklahoma in Norman, OK. CONTACT: Betty Pat. Gatliff SKULLpture Lab 1026 Leslie Lane Norman, OK 73069-4501 (405) 321-8706 www.sculpture.outreach.ou.edu/

8-12 Fall Continuing Education for Forensic Professionals Program Hosted by the West Virginia University Forensic Science Initiative. To be held in Nashville, TN. CONTACT: http://fsi.research.wvu.edu/

15-18 23rd International Symposium on Human Identification To be held in Nashville, TN. CONTACT: www.ishinews.com

17-19 Blast Scene Recovery: A Full-Scale Post Blast Investigation Field Exercise To be held at the Montgomery County Fire Academy in Conshohocken, PA. CONTACT: (215) 366-1591 Fax: (215) 366-1525 info@forensicscienceeducation.org http://forensicscienceeducation.org/

23-25 Audio Forensics To be held in Claremore OK. CONTACT: (866) 260-6376 www.tracertek.com/ecom-prodshow/advancedforensicstraining.html

NOVEMBER 2012

10 Forensic Aspects of Ancient Egypt A Study Day presented by Joyce Filer, MSc. To be held at the University of London, Hughes-Parry Hall (Garden Halls). CONTACT: Richard study.egypt@virginmedia.com

12-13 Sex Crimes Investigation Presented by Dr. Henry Lee with Dr. Leah Bush. Sponsored by George Mason University. To be held at Hyatt Fairfsex in Fairfax, VA. CONTACT: http://ocpe.gmu.edu/SCI.html

15-18 H20 Criminalistics & Pathology Symposium To be held at Magna Graecia University in Catanzaro, Italy. CONTACT: underwatercsi@unicz.it +39 347-14-16-900 www.underwatercsi.unicz.it

28-30 Forensics@NIST 2012 To be held at the National Institute of Standards and Technology in Gaithersburg, MD. CONTACT: www.nist.gov/oles/forensics-2012.cfm

DECEMBER 2012

1 Festivities in Ancient Egypt A Study Day presented by Joyce Filer, MSc. To be held at the University of London, Hughes-Parry Hall (Garden Halls). CONTACT: Richard study.egypt@virginmedia.com

3-7 Advanced Bloodstain Pattern Analysis Course To be held at the Johnson County Sheriff’s Office Criminalistics Laboratory in Olathe, KS. CONTACT: Paul Kish (607) 962-8092 paul@paulkish.com
Going On?

3-7
Basic Bloodstain Pattern Analysis Workshop Presented by the Specialized Training Unit at the Miami-Dade Public Safety Training Institute in Doral, FL. CONTACT: Toby L. Wolson, MS, F-ABC Miami-Dade Police Department Forensic Services Bureau 9105 N.W. 25th St. Doral, FL 33172 (305) 471-3041 Fax: (305) 471-2052 twolson@mdpd.com

JANUARY 2013

7-8
Intensive Forensic Anthropology Methods (2-Day) To be held at the Forensic Anthropology Center at Texas State University in San Marcos, TX. CONTACT: Sophia Mavroudas (512) 245-1900 FACTS@txstate.edu www.txstate.edu/anthropology/facts/workshops.html

7-12
Techniques of Facial Reconstruction and Facial Recognition Sponsored by Missouri Western State University and the Southern Institute of Forensic Science. To be held in Saint Joseph, MO. CONTACT: Barbara Harris Missouri Western State University Department of Criminal Justice 4525 Downs Drive St. Joseph, Missouri 64507 Phone: (816) 271-4293 Fax: (816) 271-4138 oaharris@missouriwestern.edu

11
Identifying Human from Non-Human Bone To be held at the Forensic Anthropology Center at Texas State University in San Marcos, TX. CONTACT: Sophia Mavroudas (512) 245-1900 FACTS@txstate.edu www.txstate.edu/anthropology/facts/workshops.html

28-Feb. 1
Medicolegal Death Investigator Training Course To be held at Saint Louis University in St. Louis, MO. CONTACT: Julie Howe (314) 977-5970 howej@slu.edu http://medschool.slu.edu/mldi

FEBRUARY 2013

4-8
Forensic Facial Reconstruction Sculpture To be held at the Forensic Anthropology Center at Texas State (FACTS) in San Marcos, TX. CONTACT: Sophia Mavroudas FACTS@txstate.edu www.txstate.edu/anthropology/facts/workshops.html

18-21
Bloodstain Pattern Analysis I CONTACT: Craig Gravel Bevel, Gardner & Associates Inc. (405) 706-8489 rcgravel@aol.com https://www.bevelgardner.com/index.php?classes&action=view_event&id=62

MARCH 2013

4-8
Basic Bloodstain Pattern Analysis Workshop Presented by the Specialized Training Unit at the Miami-Dade Public Safety Training Institute in Doral, FL. CONTACT: Toby L. Wolson, MS, F-ABC Miami-Dade Police Department Forensic Services Bureau 9105 N.W. 25th St. Doral, FL 33172 (305) 471-3041 Fax: (305) 471-2052 twolson@mdpd.com

Do you have an event or workshop coming up you’d like to get word out about? Send information about the event, dates, and contact information and how to register, as well as a website to admin@theforensicteacher.com. Please send information at least 3-6 months in advance of the event.

www.theforensicteacher.com
Jeremiah Hill thought he’d play a practical joke on one of his buddies who was about to travel from Hill Air Force Base in Utah to a conference in Arizona. After all, the gag was so over-the-top anyone with any sense of humor would appreciate the fun. However, airport security screeners are not known for being a barrel of laughs. The note Hill wrote and placed in his buddy’s carry-on luggage, a corner of which stuck out just enough to catch the attention of anyone with a suspicious mind, was a to-do list that read 1) Hijack Plane, 2) Kill Obama. The FBI and Secret Service zeroed in on Hill, took him into custody, and turned him over to local law enforcement who charged him with intentionally circulating a false warning of a plane hijacking.

When Joey Buchanan and his grandfather stepped out of Joey’s Smart Car they didn’t notice Jerry Washington of Warrior, AL approaching. Washington jumped in the car, ran over Joey in the process, and zoomed away. Washington wasn’t happy, though, because in running over Joey, who wasn’t seriously hurt, the car was damaged. Washington then drove to the police station to file a complaint. The police were looking for him, and arrested him on the spot.

Kariem McFarlin drove through upscale neighborhoods in Palo Alto, CA looking for houses to target for break-ins. He noticed one that looked empty and returned before dawn the next day. All of the doors and windows were locked, but in an unlocked gardens shed he found a key that opened one of the doors to the house. No alarms went off when he entered, and he spent the next couple hours taking tens of thousands of dollars of Tiffany jewels, iPads, iMacs, Cristal champagne, and credit cards he found in a wallet. He got away clean, but blew his cover a week later when he used one of the stolen iPads to access his iTunes account. Investigators found it easy to track him down after his music account caught the attention of law enforcement. The iPad and homeowner’s name? Steve Jobs. His wife had moved out while renovations were being done.

A New Castle, Delaware man took his pickup truck to a repair shop, but wasn’t able to pay the bill when the repairs were finished, so the garage locked it up. The man, Donald Smith, wasn’t about to let a fence stop him. Just after midnight he returned to the garage with a front-end loader to gain entry, physically picked up his truck, and fled the scene. The shop owner called police who chased Smith for 35 minutes in what was described as a slow-speed chase. Smith was finally caught when he drove the loader and its cargo into a retaining pond.

Ebola is a nasty virus that causes one’s internal organs to liquefy and blood to leak from every body orifice. Generally, it is hard to contract because victims don’t live long enough to infect other people. However, a man broke through hospital security in Uganda, made his way into the isolation ward, and stole a cell phone from a man dying of the virus. Police suspected him of the crime, but had no proof until he turned up at the hospital with symptoms of Ebola. They wanted to arrest him, but he was too busy expiring to comply.

David Weber broke into a car in a Miami Beach and stole a credit card he found. An hour later he walked into the Clevelander Bar and attempted to pay for a beer with the card. Unfortunately, the bartender recognized the card as his own. He called police and Weber was arrested.
Stoopid Movies

More stoopid criminals; these guys are priceless.

Click on the cameras below to see the movies (internet connection required).