



# THE CRIMESCENE

NEWSLETTER OF THE LAKE COUNTY CRIME LABORATORY

## Kim Gilson: High on Drug Analysis

BY ROBERT SBERNA

The Dream Job.

It's an elusive quest for many of us. For Kim Gilson, a chemist at the Lake County Crime Laboratory, working as a forensic scientist is the fulfillment of a goal she's had since her teen years.

"I've always been interested in science," says Gilson. "And I've always enjoyed watching TV crime shows. When I was young, I told my parents that I was going to go into the forensics field someday. Even back then, I knew that I wanted to work in an area of science where I could figure out the unknown."

At the Crime Laboratory, Gilson is responsible for analyzing solid dose drugs, such as heroin, cocaine, methamphetamine, marijuana, prescription drugs, and the newer synthetics (spice and bath salts) that police have seized from suspects or discovered while conducting search warrants.

Gilson's transition from watching CSI-type shows on TV to actually becoming a forensic scientist is due, in large part, to a combination (CONTINUED ON PAGE 3)



Kimberly Gilson

## Bloody Murder: A Life Extinguished

BY ROBERT SBERNA

On the evening of August 15, 1998, two Mentor Police officers arrived at a three-bedroom home to check on the welfare of 43-year-old man named Glen. A Marine Corps veteran who struggled with mental illness, Glen hadn't been seen for several days and his friends were concerned.

Inside the house, police encountered a nightmarish scene in a lower-level hallway. Glen's body—covered by a blanket—was lying face down on the blood-soaked carpet. Blood was spattered along the walls and even the ceiling. When investigators removed the blanket from Glen, they discovered that he had suffered major trauma to his head, with a large part of his skull missing and his brain removed. They would (CONTINUED ON PAGE 5)



Okay, all of you, stay right where you are.  
The murderer may still be near.

# Frequently Asked Questions

This Column  
Answers  
Questions  
Commonly  
Asked of our  
Scientists



**ANSWERED BY LINDA ERDEI, M.S.**  
LABORATORY DIRECTOR

**Q:** What types of evidence should be collected from property crimes and submitted to the Lake County Crime Laboratory?

**A:** Property crimes constitute a majority of the crimes occurring in Lake County. The Crime Laboratory considers these crimes to be important and will spend the resources necessary to help you solve and/or link your cases.

## **TOUCH DNA:**

With the development of touch DNA (the transfer of skin cells to objects that have been handled), there is a wide range of evidentiary items that can be collected now that historically were never considered. Touch DNA samples can be collected on sterile swabs from areas including, but not limited to: door handles; safes; instruments utilized to pry open doors; drawer handles; and unidentifiable latent prints. There are also a number of items that should be collected for submission: any object believed to have been handled with force or for a prolonged period of time by the suspect or any articles of clothing that may have been left behind by the perpetrator (hats, scarves, gloves, shoes) may contain skin cells for touch DNA analysis. Cigarette butts and beverage containers have proven to be excellent sources of biological evidence for DNA testing.

An important reminder to investigators is to also collect DNA elimination swabs from the occupants of the residence. This enables the scientists to more rapidly assess any profiles that may be obtained from the evidence collected.

## **HAIRS:**

Often overlooked, hairs can prove to be an invaluable piece of evidence. Dave Green, Trace Analyst at the

Crime Laboratory, routinely performs microscopic comparison analyses on hairs which can assist not only sexual assault or homicide investigations, but can also be useful in property crime investigations. For example, if a stolen vehicle is recovered, tape lifts from the driver's-side and passenger's-side front seats of the vehicle should be collected to capture any hairs that may have been left behind. Hairs may yield nuclear or mitochondrial DNA, depending on the condition of the hair. Both of these types of DNA have been detected on hairs found at crime scenes and have been used in the successful prosecution of cases in Lake County.

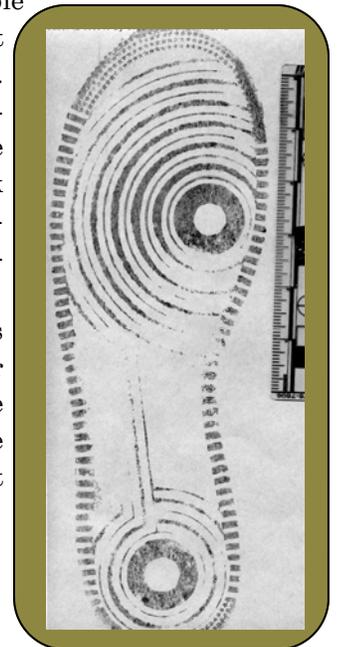
## **GLASS:**

If any glass objects, such as windows, are fractured, broken glass fragments as well as known glass from the window frame or fractured object, should be collected for comparison. Impression evidence or fiber evidence may be present on this glass. The suspect's clothing, especially footwear, should be submitted for glass analysis in any case involving broken glass at the scene.

## **FOOTWEAR IMPRESSIONS/TOOL MARKS:**

The ground/flooring outside and inside of the point of entry should be carefully evaluated for footwear evidence. Shoe prints and tire tracks can be useful in linking a perpetrator to a crime or a vehicle to a crime scene. Many household burglary cases have been linked to each other using footwear comparisons. Accu-Trans or Mikrosil casts of any questioned toolmarks and any questioned footwear impressions should be submitted for evaluation and possible sourcing, even if there is not a known suspect at the time. Always collect a paint control sample from near the area where any toolmark casts are collected for comparison with any paint detected on suspected tools.

If you have any questions about what to collect, or what we can analyze, please call Linda Erdei, Dave Green or Karen Zavarella at 440-350-2793. ↴



## Kim Gilson: High on Drug Analysis

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### HIGHLIGHTS

- Board Certified - American Board of Criminalistics (ABC)
- Fellow - American Board of Criminalistics (ABC)
- Member - American Chemical Society (ACS)
- Associate Member - Midwestern Association of Forensic Scientists (MAFS)
- Member - Ohio Identification Officers Association (OIO)

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of her academic achievements and good timing.

A graduate of Riverside High School, where she was a member of the National Honor Society, Gilson attended the College of Wooster, majoring in biochemistry and molecular biology.

In her senior year at Wooster, she began searching for employment in the forensic field. "But there weren't many forensic science jobs when I first started looking," she says. "So I put my resume out for any science job that was available."

With no definite job prospects and only two weeks until graduation, Gilson was feeling anxious. But her spirits lifted when her college academic advisor told her about an internship opportunity at the Crime Laboratory.

"I was so excited about the internship that my jaw just about hit the floor," says Gilson. "I was not only happy about the opportunity, but also that it was in my hometown. I have a large family in Northeast Ohio and I had always wanted to stay close to them."

In June 2010, Gilson began her three-

month internship under the supervision of Doug Rohde, the Supervisor of Chemistry and Toxicology at the Crime Laboratory.

"The internship was great because it enabled me to see how the lab operates," Gilson says. In September of that year, when her internship was near completion, Gilson was happily surprised to receive an offer of full-time employment.

"Just as my internship was ending, a chemist at the Crime Laboratory left," she says. "When Prosecuting Attorney Charles Coulson offered me the position, I was thrilled. Some of my college friends were having difficulty finding jobs in their fields, so it was mind-blowing for me to get a great job just a couple of months out of school."

While she was excited to join the Crime Laboratory, Gilson says the experience was "nerve-racking" at first. It's unusual for a recent college graduate to land a forensic science position at a laboratory, she says, explaining that laboratories typically hire experienced scientists.

"I was a young person at the Crime Laboratory and I had to quickly learn how a lab functions and the level of professionalism that's required," she says. "I also wanted to show that I wasn't just a college kid. I wanted to prove that I was a true professional and that I wanted to make forensic science my career."

Now in her fourth year at the Crime Laboratory, Gilson says that some aspects of the job are still nerve-racking. "Every day is a learning experience," she says. "You take what you learn and apply it to whatever case you're working on."

Gilson works on about 1,000 drug cases per year. Typically, when drug evidence is submitted to the Crime Laboratory, Gilson writes a description of the evidence, weighs it, and then performs various tests to identify the substance.

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# Kim Gilson: High on Drug Analysis

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When analyzing evidence, Gilson uses two main tools: Fourier transform infrared spectroscopy (FTIR), which bombards the unknown substance with infrared radiation causing unique molecular vibrations; and gas chromatography/mass spectrometry (GC/MS), which utilizes electrons to identify the unknown substance.

Once Gilson confirms the presence and identity of a drug, she prepares a report that clearly and thoroughly documents her conclusions. The report is reviewed by another scientist and then goes to the submitting law enforcement agency, and to the prosecutor, if requested.

“There is a lot of paperwork in my job,” Gilson says. “About 40 percent of the time I spend on a case involves analyzing evidence; the other 60 percent is processing data and writing up the reports. We have to be sure that our conclusions are expressed in a correct manner.”

Gilson says that she and her colleagues are focused on providing accurate results and take pride in the speed and efficiency with which they obtain results.

“I want to make sure that I do everything correctly,” she says. “I take extreme care when processing all items of evidence, to ensure that I have generated results that are defensible in court.”

On occasion, Gilson is called to testify in court about her results. While she admits that courtroom appearances can be stressful, she says it’s a very interesting part of her job.

“I never know what questions I’ll be asked by a defense attorney, so I get a little nervous,” she says. “But a little nervousness is a good thing because it shows that I take my job seriously.”

Gilson is unquestionably committed to her job. She is certified by the American Board of Criminalistics and



Gilson analyzing prescription drugs seized from the black market.

has completed numerous professional development and continuing education courses.

“I really enjoy what I do,” she says. “I’m an expert in my area and I get to see a variety of cases every day. The unusual cases are a nice break from some of the more routine cases I work on.”

Gilson has experienced several major life changes since joining the Crime Laboratory as an intern in 2010. Her lab colleagues have seen her graduate from college, start her full-time job, get married, and become a mother. A resident of Chardon, Gilson and her husband, Matt, welcomed their daughter, Jillian, in May 2014.

“When I returned to the lab from maternity leave, it was an adjustment getting back to work,” she says. “Now, as a mother, I have extra responsibilities. But the lab has been very supportive, which has made it much easier to balance my work life and my home life.” 🐦

## Lake County Crime Laboratory Scientist Joins National Initiative

BY ROBERT SBERNA

David Green, a criminalist at the Lake County Crime Laboratory, has been appointed by the National Institute of Standards and Technology (NIST) to a subcommittee that is helping to identify and develop new standards and guidelines for the U.S. forensic science community.

Green joins 19 other forensic scientists, academics and statisticians on the Materials (Trace) Subcommittee

of the NIST’s Chemistry/Instrumental Analysis Scientific Area Committee.

The Chemistry/Instrumental Analysis Committee is one of five committees that comprise the newly established Organization of Scientific Area Committees (OSAC), which is working under NIST to improve the quality and reliability of forensic science. In a unique partnership launched in 2013, NIST, an agency of the U.S. Department of (CONTINUED ON PAGE 8)

# Bloody Murder: A Life Extinguished

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later find his brain wrapped in a black garbage bag in the home's freezer.

Initially, based on Glen's injuries and the extensive blood spatter, police thought he had been shot. However, no casings or shotgun pellets could be found. Officers also did not find a readily apparent murder weapon or fingerprints that could point to a suspect. Glen's friends told police that he had recently acquired a roommate, Tyrone Wotring, whose whereabouts were unknown.

With police searching for answers about the cause of Glen's death, Linda Erdei and David Green of the Lake County Crime Laboratory were called to the crime scene. For many people, looking at the carnage in Glen's house would be difficult. But Erdei and Green were eager to analyze the bloodied walls and ceiling, knowing the stains would tell a story about what had occurred.

## BLOODY CLUES

The size, shape, location and distribution of bloodstains can tell a forensic scientist many things, explains Erdei, who served as a serologist and crime scene analyst at the Laboratory until 2000, when she was appointed director. A member of the International Association of Bloodstain Pattern Analysts, Erdei has attended numerous bloodstain workshops and seminars.

"Through careful examination, trained scientists can determine the angle that the blood hit the walls, ceiling and floor, which can help to establish what happened during the crime," Erdei says. "Sometimes, examiners can determine how many blows occurred, and whether the victim was standing, sitting or lying down when it happened. By using trigonometry and measurements to calculate the angles of the stains, examiners can see where the blood originated."

In general, bloodstain patterns fall into three basic categories: passive stains such as drops and pools that fall from an open wound; transfer stains caused by a blood bearing surface coming into contact with another surface, leaving wipes, swipes or transfer patterns behind—such as a bloody shoeprint or a smear from a bloody handprint; and impact stains that result from blood projecting through the air, possibly from a severed artery. Impact stains are often stains that may be very useful to a trained bloodstain pattern interpretation expert.



The fire extinguisher used by Wotring as the murder weapon.

The physics behind the size and shape of a blood drop can give examiners an idea of what type of event occurred.

Erdei adds that swipes and wipes can often be particularly valuable in determining how—and in which order—events occurred. A swipe is a pattern resulting from transfer of blood from a blood-bearing surface onto another surface, and a wipe is a pattern resulting from an object moving through a pre-existing wet bloodstain.

While police collected evidence, including a fire extinguisher that appeared to be the murder weapon, Erdei and Green, a criminalist, took photographs and measurements of the various bloodstain patterns in the hallway.

Erdei did not find "cast-off" bloodstain patterns on the ceiling and walls, a sign that the fire extinguisher was wielded in an up-and-down pummeling fashion, rather than in a swinging motion. The bludgeoning had left Glen unrecognizable, and produced bloodstains as far as nine feet away from the point of attack.

Erdei also did not detect any blood smearing in the hallway, which indicated that once the attack began and Glen's blood was first shed, there was not much movement by Glen, and therefore no indication of a fight. The bloodstain pattern interpretation led to a determination that Glen had been overcome by another person early on in the assault and had no chance to defend himself.

## THE ARREST

Within hours of discovering Glen's body, Mentor Police located Tyrone Wotring, who was being held in a nearby city's jail on an (CONTINUED ON PAGE 6)

## Bloody Murder: A Life Extinguished

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After being found guilty of Murder, Wotring was sentenced to serve a prison term of 15 years to life in prison.

unrelated traffic charge. Wotring, also a Marine Corps veteran, had been introduced to Glen by members of the Marine Corps League, a nonprofit group that provides assistance to active duty and discharged Marines. Wotring moved into Glen's house in June 1998.

Wotring told detectives that he and Glen had argued on several occasions. Saying he was afraid that Glen was planning to kill him, Wotring admitted that he hit Glen in the back of his head with the fire extinguisher. In a police statement that was consistent with Erdei's bloodstain pattern analysis, Wotring said he continued to beat the immobile Glen with the fire extinguisher for three to four hours.

After Glen died, Wotring removed his brain and placed it in the freezer. He stated that he did this because he felt remorseful, and he believed that scientists

would someday be able to use the brain to clone Glen. Wotring then washed his bloody clothes, cleaned the fire extinguisher and returned it to its cabinet, and then left the residence and went to his job.

Despite Wotring's confession and the solid investigative efforts of Mentor Police, he pleaded both not guilty and not guilty by reason of insanity to all charges. Medical experts, however, determined that Wotring was not insane when he murdered Glen. Confronted with bloodstain analysis by the Crime Laboratory that showed the brutality of his crime, Wotring decided to change his plea to guilty.

Reflecting back on the gruesome nature of Glen's death, Erdei now says that one of the surprising aspects of the case was its violence.

"The fire extinguisher that was used to beat Glen was no longer round—it had become extremely misshapen and very nearly square," she says. "Also, the fact that the brain of the victim had been removed and placed in a garbage bag in the freezer was surprising. That was something that I had never encountered before."

Nevertheless, while at the crime scene, Erdei says she was able to remain emotionally detached from the crime and concentrate on performing her job. The professionalism and training of Erdei and the Crime Laboratory team was an important factor in determining the circumstances of Glen's death and ensuring that his killer was held accountable. Tyrone Wotring is now serving a prison sentence of 15 years to life. ➤



Bloodstain pattern analysis strings showing location of the attack.

# Service, Integrity and Truth: The Evolution of the Lake County Crime Laboratory

## Part Two of Three Parts

BY ROBERT SBERNA

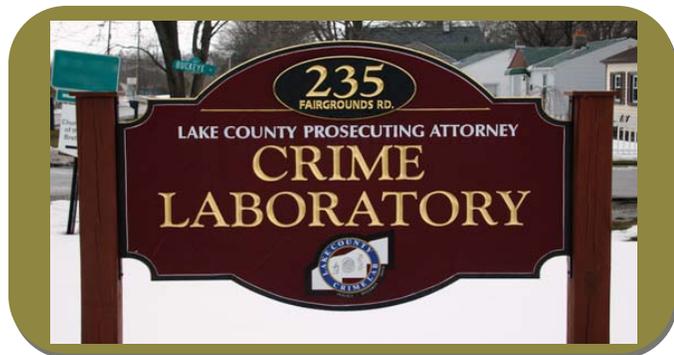
In 1991, the Lake County Crime Laboratory added physical space and expanded its capacity for service when it moved to its present location across the street from the Lake County Fairgrounds in Painesville Township. The Crime Laboratory was now poised to focus on the breakthrough science of DNA testing.

The Laboratory's current director, Linda Erdei, M. S., joined the Crime Laboratory in 1992 and founded its DNA unit the following year.

"We were one of the first laboratories in Ohio to offer DNA testing," says Erdei. "I knew it was going to be a helpful tool because it was so much more discriminating than the current technology of serology testing, which only detected the presence of certain enzymes and blood types."

DNA analysis has proven to be a very effective and reliable method of linking crime scene evidence to suspects, especially with the development of polymerase chain reaction (PCR) technology, which enables scientists to replicate a miniscule sample of DNA into millions or billions of copies. Through PCR, explains Erdei, a single hair root or a microscopic bloodstain left at a crime scene can be amplified into sufficient DNA material for analysis.

The Crime Laboratory's state-of-the-art services includes "touch DNA" analysis, a method of processing DNA recovered from skin cells left behind when a person touches an item, such as a cell phone or a gun. Even if a suspect only leaves several skin cells behind, laboratory scientists can develop a DNA profile.



Once DNA evidence is developed, the laboratory compares it to a sample taken from a suspect or victim, if available. The DNA profile is also uploaded to the FBI's Combined DNA Index System (CODIS), where it is compared to millions of other profiles obtained from crime

scenes and from convicted offenders and arrestees. A match or "hit" indicates that two or more crimes are linked together.

In 2013, the Crime Laboratory ran 187 DNA cases and had 15 hits in the Index System. In the first three quarters of 2014, the laboratory ran 214 DNA cases and had 30 hits.

Erdei says the increase in DNA cases is due, in large part, to local police departments becoming aware that the Crime Laboratory processes touch DNA cases.

"We perform touch DNA analysis on all types of crimes—from violent offenses to property crimes—as opposed to other laboratories that only perform touch DNA on homicides," she explains.

Erdei, who was named laboratory director in 2000, says it's an important goal of hers that the Crime Laboratory keeps up with available science. "We want to be able to provide the best forensic results that we can," she says.

As an example of the Crime Laboratory's evolution, she notes, "Ten years ago, we had the questioned documents discipline, which was primarily used for check fraud. And now, as computer crimes have increased, we've responded by dropping questioned documents and adding the discipline of digital evidence examination, which encompasses computers, cell phones, cameras, and other digital devices."

Just as the Crime Laboratory was a pioneer in offering DNA testing in Ohio, the laboratory was one of the first to participate in the national Automated Fingerprint Identification System (AFIS), which was added in 1993.

"The addition of AFIS, for both fingerprints and palm prints, has allowed us to search the state database and federal database for fingerprint matches," says Erdei. "That has been an immense help in identifying suspects."

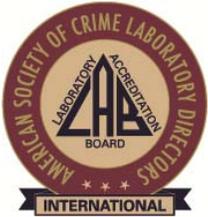
The Crime Laboratory now offers the following disciplines: DNA Analysis, Fingerprint Examination, Firearms Examination, Trace Evidence Analysis, Digital Evidence Examination, Toxicology Analysis, Controlled Substance Analysis and Crime Scene Processing. The staff also provides training to Lake County law enforcement agencies and provides expert testimony if a case they analyzed goes to court. ➔

(CONTINUED IN THE NEXT EDITION)



# LAKE COUNTY CRIME LABORATORY

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## Lake County Crime Laboratory Scientist Joins National Initiative

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Commerce, is collaborating with the Department of Justice's National Commission on Forensic Science to bring uniformity to the system of developing forensic science standards. While addressing key forensic science issues, the partnership is focused on improving the scientific basis of forensic evidence used in courts of law.

Over the past year, NIST has appointed nearly 600 forensic science practitioners and experts from public agencies, academia and private industry to OSAC's five committees and 23 discipline-specific subcommittees. Each participant will serve either a two-, three- or four-year term.

As a member of the Materials (Trace) Subcommittee, Green will review standards and guidelines related to the examination of trace (very small) fragments of physical evidence such as hair, textile fibers, paint chips, tape, and glass found during criminal investigations.

"Our objective is to establish standards for trace evidence examiners in the U.S." says Green, who joined the Crime Laboratory in 1989 and has served as trace evi-

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dence examiner, drug chemist, and crime scene examiner. Green is the only scientist from Ohio named to the trace evidence subcommittee. He holds a bachelor's degree in forensic chemistry from Ohio University. In 2012, Green received the "Outstanding Scientist Award" from the Midwestern Association of Forensic Scientists.

The OSAC committees, which hold their first public meetings on February 16 and 17, will coordinate the work of the various subcommittees. The results will then be channeled to NIST's Forensic Science Standards Board. Once the new scientific standards and guidelines are defined, OSAC will list a Registry of Approved Standards along with a Registry of Approved Guidelines on its website. For more information, visit [www.nist.gov/forensics/osac.cfm](http://www.nist.gov/forensics/osac.cfm). 🐿