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**CRIME
SCENE**
INVESTIGATION

CRIME SCENE TECHNOLOGY NEWS



www.csiequipment.com



Crime Scene Investigation Equipment Ltd is based in the beautiful County of Buckinghamshire, South East England. We are the oldest established company in the United Kingdom specialising in the manufacture and supply of quality materials for the Fingerprint, Scene of Crime and Forensic Investigator.

Staffed by ex-members of the Police and Security Services (British Military) we have a wealth of knowledge and expertise in all aspects of criminal and forensic investigation and therefore fully understand the problems and difficulties encountered by our customers.

It's for this reason, that for many years, we have continued to invest in new products and services that allow our customers around the world, to detect, apprehend and prosecute those individuals who choose to live outside the law.

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CRIME SCENE TECHNOLOGY NEWS

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CRIME SCENE TECHNOLOGY NEWS

EDITORIAL

As we begin the start of a New Year we have been receiving an ever growing number of solved cases from around the World where M-Vac has been used on difficult exhibits to recover touch DNA. As the European distributor of M-Vac we will continue to publish successes with this technology.

M-Vac is new to many forensic science providers and police services but one fact is certain that if they take steps to use M-Vac technology they will solve many current and difficult cold cases. The experience internationally is that M-Vac is a sound investment the outlay on which is recovered by the first promptly solved case

We shall be demonstrating M-Vac and will be pleased to hear from police and forensic science providers wishing to arrange practical demonstrations of M-Vac. We have academic partners and validations from laboratories and universities. The company is in contact with UKAS and internationally there have been no validation problems.

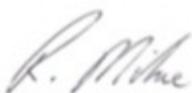
Please check out Jared Bradley's article about M-Vac and the example, of a profile from a swab compared to M-Vac recovered DNA which has less background noise and consequently often requires less amplification.

New certified DNA Free products are being produced by CSI Ltd and the article about these products explains why the company is working on producing DNA Free consumables and other items which are certified to be free of DNA contamination.

We enjoy receiving feed back from readers and will reply to any questions you may have promptly.

Have a great and productive New Year

Kindest regards,





**THE AUTHORISED DISTRIBUTOR
FOR M-VAC EUROPE**



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Introducing DNA free kits for Forensic Investigation.



Grahame Sandling CSI Ltd

Since its first use in 1986 during the investigation into the Colin Pitchfork murders in Leicestershire, DNA collection and identification has become a vital part of criminal investigations, and is a fast-moving and exciting field of research and development. To avoid cross-contamination, it is absolutely essential that evidence is collected from crime scenes using sterile equipment.

In Germany in 2007, traces of DNA belonging to an unknown female were found at the scene of the murder of a police officer. When run through the German database, identical DNA was found to have been present at the scene of five other murders, along with several burglaries and car thefts. In total, the woman's DNA was found at 40 separate crime scenes. The German authorities spent two years and thousands of hours searching for the culprit, only to discover that the DNA had in fact been present on the swabs the crime scene investigators had been using to collect their samples -the swabs had been accidentally contaminated by a woman working at the factory that produced them.

CSI Ltd have been actively addressing this problem to ensure mistakes like this never need happen again. They have put together bespoke packs, containing exactly what is needed to collect DNA from a specific crime, so avoiding waste and streamlining the entire collection process. Each pack is packed in clean room conditions and then sterilised, so the end user can be absolutely sure that no cross-contamination has occurred. They are able to offer this service affordably and efficiently as it now has both a Class 7 Clean room and an Ethylene Oxide sterilisation chamber at its UK facility, from where it can also handle global distribution.

What makes these kits and swabs stand out is that they are 'Certified DNA Free'. Customers will receive a certificate from a leading European Laboratory confirming that they are in fact 'DNA Free' *NOT* 'DNA Denatured or DNA Clean' as often currently supplied.

A typical certificate is shown overleaf.



DNA Certificate

Suitability for trace detection of the swab material

We herewith confirm that the supplied swabs with the Article No. 1020055, Batch 3I20 on October 12, 2011 of Heinz Herenz Medizinalbedarf GmbH were examined by the Institute Dr. Lauk & Dr. Breiting (Expert Institute Dr. Lauk & Dr. Breiting) in accordance with the contractual arrangement for human DNA contamination. The tested swabs show no DNA contamination which is documentable by means of PCR analysis.

Please check whether the packaging was damaged during shipment. If the packaging is damaged, no guarantee can be made for the suitability of the swabs for trace detection. The process of the trace analysis method used has been validated and is monitored continuously.

METHOD

From the swabs sterilized with ethylene oxide, the DNA is extracted from 0.02% to 0.1% of a batch using a silica-gel-based process. At the same time, samples with defined DNA (human DNA with a known DNA profile) are added to the sterilization process and examined as well. The SE33, D21S11, VWA, TH01, FGA, D3S1358, D8S1179 and D18S51 systems are analyzed using PCR.

A negative control (a DNA-free tested swab), and a positive control (human DNA with a known DNA profile) are used as PCR controls. The analysis kit SEfiler® plus (Applied Biosystems) or Nonaplex® QS (Biotype) is used for the typing.

ANALYSIS:

The swabs examined show no human DNA contamination detectable by the aforementioned analysis kits. No DNA profile could be determined on the samples with the human control DNA added to the sterilization process; this confirms a successful ethylene oxide treatment.

The results of this trace analysis will be stored for 10 years and can be viewed at any time. We confirm that the required quality control measures were carried out during the examinations.


Dr. C. Lauk




Dr. J. Schaaf



Experts for parentage analysis, DNA profiling of comparison samples and crime scene traces
Publicly appointed and sworn by the Chamber of Industry and Commerce of the Northern Black Forest

If You Can't Collect It, You Can't Detect It

Jared BRADLEY CEO of M-Vac Systems, looks at a recent case in the USA, solved using M-Vac.



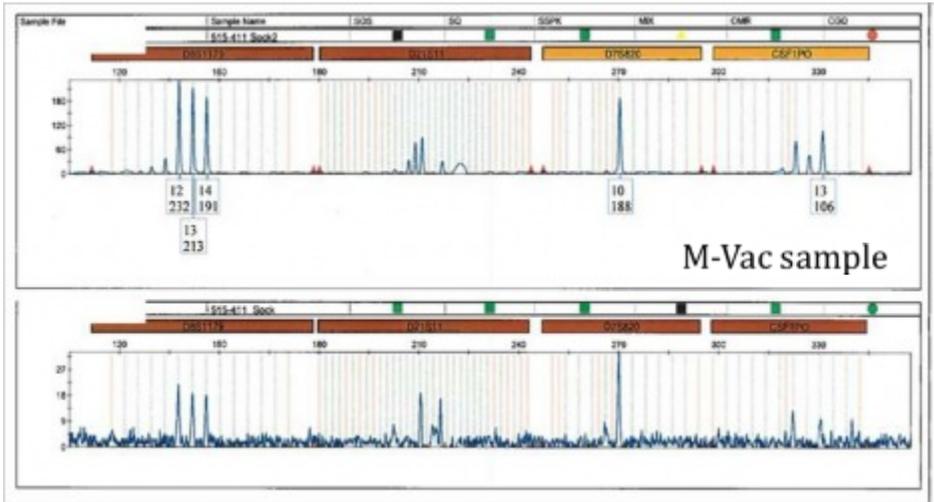
Not long ago a good friend, who is also a detective in one of the largest sheriff offices in the US, described the desperate circumstances one of his cases was in and what he had to do in order to move it forward. A young woman had been brutally murdered by a heavy, blunt object and found in her yard along with tools that indicated the person who had killed her also planned on disposing of her body. Most likely the suspect had just run out of time or he would have completed his grisly intentions.

The detective and his team had a suspect under surveillance and based on all the circumstantial evidence they were confident the suspect had committed the heinous crime, but due to a lack of hard evidence, particularly DNA linking the suspect to the murder weapons, they were unable to file charges. To make matters worse, the judge overseeing the investigation had given the investigators a time limit on how long they could keep the suspect under surveillance and that time was quickly running out.

How can touch DNA be effectively collected off of a rough and porous surface? That was the question that had to be answered. The swabbing technique had been ineffective despite multiple tries, and the other methods could not penetrate the hard, porous surface. The detectives knew the suspects DNA was likely on the object, but how to actually collect it off of the surface constituted a major problem.

Fortunately, the detective was doggedly determined, information is increasingly abundant and searchable, and even small businesses can have a big presence on the Internet. He was able to find several articles on a new wet-vacuum collection device called the M-Vac System. Almost immediately he knew it was the only possibility for getting that DNA off of the evidence. That's when he called me and we arranged to get an M-Vac System to him and help in the case. Within a relatively short amount of time the M-Vac had collected the touch DNA material off of the murder weapon, the lab had processed it and the suspect's DNA profile was generated.

Due to the hard work of the investigative team, that suspect is now off the streets waiting for trial instead of being out on the streets further terrorizing the community.



Double swab sample

Improve Your DNA Profiles with the M-Vac System

M-Vac Advantages

- More DNA Collected
- Rough Surfaces
- Large Surfaces
- Higher rfu Peaks
- More Stable Profiles
- Cold Cases
- Active Cases

Getting a clean, viable DNA
Profile isn't as easy as the TV
shows make it look

Why doesn't every case have a 'cut and dry' DNA profile of the suspect? Because collecting and processing cellular material to produce a perfect DNA profile isn't reality.

In truth it's difficult at every stage and the process begins at the crime scene or the point of deposit. If you don't collect enough DNA material then the rest of the process is pointless. That is where the M-Vac System comes in.

The M-Vac System can collect DNA material from rough, porous and large surfaces that the traditional methods like swabbing cannot come close to. Numerous agencies have found that the M-Vac can collect up to 200X more than swabbing, providing more stable DNA profiles.

If your DNA profiles are not what you need to move your case forward, use the M-Vac you will be glad you did.



**Call today to get more information at
801-523-3962
or visit our website at www.m-vac.com**

M-Vac helps solve more and more difficult cases.

By Cristina Rentas, DNA Labs International

The M-Vac® collection system utilizes the same principles as a wet vacuum. First, a DNA-free buffer is sprayed onto the surface of the sample using the M-Vac®'s sampling head. Then, a vacuum pressure is applied over the sprayed area of the sample, so that the buffer can be re-collected. The re-collected buffer now contains suspended particles including the DNA contained on the sample. The buffer is then poured through a sterile filter where the biological material binds to the filter and becomes concentrated. The filter can then be sent forward to the extraction process in the laboratory.

Over the past year, DLI has utilized the M-Vac® system on a wide variety of samples including items such as clothing, ropes, and even a car. One of the most common problems that forensic scientists encounter when screening clothing items for DNA is that there is often a great amount of DNA from the wearer, but very little from individuals that came into contact with the wearer. This is a situation where the M-Vac® collection system can be very helpful.

Recently, the M-Vac® collection system was instrumental in solving a homicide. The victim was murdered and the suspect emptied the victim's pant pockets. The pants pockets were swabbed and the swabs were submitted for DNA testing. The DNA profile obtained from the sample after swabbing was performed contained a mixture that could not be interpreted due to its complexity. The pants were then submitted to DLI for testing in order to see if the suspect's DNA could be found on the pants pocket. The interior pocket of the pants was sampled using the M-Vac® and the filter was extracted.

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The DNA profile obtained from the pocket was a mixture of two individuals consisting of a major and a minor DNA Profile. The major DNA profile was consistent with the victim and the minor DNA profile was consistent with the suspect. The chance that an individual chosen at random from the general population would have a profile consistent with the minor profile was more than one in a trillion individuals.

In another case where the M-Vac® collection system was useful for collecting DNA from an article of clothing, the victim was attacked and died of blunt force trauma over a decade ago. Due to the brutality of the attack, there was blood present on a great portion of the victim's clothes. Since it appeared that a struggle had taken place between the victim and the attacker, the M-Vac® was used to collect a sample from the unstained portion of the victim's pant legs. A mixed major DNA profile was obtained from the pant legs as a result. Assuming that there are two contributors to the mixed major DNA profile and that one of them was the victim, a foreign DNA profile was deduced that could be compared to any suspects in the case.

Finally, although DLI has had a great deal of success using the M-Vac® for the collection of DNA on clothing, it has also proven to be successful for other types of samples as well. It was recently used in a burglary case where an employee entered his store in the morning and found two males attempting to rob the store. After the suspects burglarised the store and had left, the employee found a rope hanging from the ceiling of the store. The crime scene unit swabbed the rope for "touch" DNA and sent the samples to a laboratory for testing. No DNA profiles were obtained from these swabs. The entire rope was then sent to DLI for testing using the M-Vac®. The 9ft. length of the rope was sampled and forwarded for DNA analysis. The DNA profile obtained was a mixture with a partial major male profile and a minor DNA profile. The partial major male profile can be used for comparison to the suspects in the case as a result.

[Click the link for more information >>>](#)

Overall, the M-Vac® collection system is a very useful tool while screening evidence, especially in cases where very minor amounts of DNA are present over a large surface area. Using this system, DNA profiles have been generated that were not possible to obtain when previously generally swabbing the evidence.



NEW FINGERPRINT KITS FOR SCHOOLS & COLLEGES

Grahame Sandling re-views the CSI Educational Fingerprint Kit



The CSI Educational Fingerprint Kit was originally designed for young persons who wished to practice their CSI™ skills at home, but more recently acquired by schools and colleges who wish to train their students in powdering and lifting techniques.

Through consultation with schools the kit was developed into its current form, which has a useful publication included covering the structure of friction ridge skin, with information about fingerprint patterns and instructions about the techniques of developing latent prints with powders. The kit has adhesive lifters as used by CSIs' in the field.

Users can purchase individual replacement items to keep the kit topped up and in addition can obtain extra types of powders and gelatin lifters if required.

This kit contains:

- # 86806 - CSI Carrying Case with foam insert
- # 86807 - User Manual
- # 86808 - Magnetic Wand
- # 86809 - Fingerprint Brush x 2
- # 86810 - White Fingerprint Powder
- # 86814 - Fluorescent Red Fingerprint Powder
- # 86815 - Fluorescent Green Fingerprint Powder
- # 86816 - Fluorescent Yellow Fingerprint Powder
- # 86820 - Red Magnetic Fluorescent Powder
- # 86821 - Green Magnetic Fluorescent Powder
- # 86825 - Black Magnetic Fingerprint Powder
- # 86826 - Silver Magnetic Fingerprint Powder
- # 86830 - Hinge Lifters Black x 4
- # 86831 - Hinge Lifters White x 4
- # 86832 - Hinge Lifters Clear x 4
- # 86835 - Protective Gloves (1 pair)
- # 86836 - Protective Disposable Apron
- # 86837 - Protective Face Mask

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"Interfaces" is the Forensic Science Society's quarterly newsletter. "CSEye" is our online specialist Crime Science Investigator publication.

<http://www.csofs.org/Publications>



The Jack the Ripper Murders What Have We Learned? 1888 to 2016

By Robert Milne FSS MCSFS MIAAI

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On the 24th June 2013, with a friend Derek Manning, I attended Collier Row Library in the London Borough of Havering to see a presentation by Susan Parry of The Whitechapel Society, on the subject of Jack the Ripper. I must admit that I had previously had enough interest in the Ripper case to go as far as producing an Power Point on the subject, as an exercise in examining the issues in the Ripper case of the journey to crime, the distribution of the crime scenes, the profiles of the victims and suspects from such information as is publicly available. My interest was from the point of view of my role prior to retirement (in 2008) from the Metropolitan Police Directorate of Forensic Services, where I was developing a Forensic Intelligence capability for the service. I thought if the processes and ideas, which are based on scientific methods', are sound then we may learn something from the very basic facts about the Ripper murders. In part of the process of developing a Forensic Intelligence Desk I became acquainted with the International Academy for Investigative Psychology (IA-IP) and the work of Professor David Canter, Dr Donna Youngs and the Academy's members becoming a full associate of the IA-IP. (FA IA-IP). (Ref 1)

So I must begin by declaring that I do not consider myself to be a 'Ripperologist' although I have been involved over 40 years in the real forensic examinations of homicide crime including crime scene examinations, laboratory work and post mortem examinations. With respect to Whitechapel, I was also in charge of the scenes of crime section in Tower Hamlets between 1977 and 1981, being based at Lemn Street Police Station (HD), so I have some idea of the geography of the area. I returned to Lemn Street Police Station in the late 1990s, when it was used to house the offices of the North East London Forensic Science Support Unit (NE FSSU) and I was one of the forensic management team servicing the Area Major Investigation Pool (AMIP) based at Arbour Square, dealing with major crime and homicide cases.

A souvenir I have of my Whitechapel scenes of crime days is an engraved pen presented on the 11th June 1981, by Whitechapel CID, when I left 'H' District on promotion to take up a posting at The Metropolitan Police Forensic Science Laboratory.



In Scenes of Crime forensics those involved are not usually given covert or privileged information and we are used to resolving cases from available disclosed facts and the evidence found. In the world of intelligence the efficient use of information and evidence is used to link, associate or un-link cases. That is the subject matter of my reference book 'Forensic Intelligence' published by CRC Press in 2012. (Ref 2)

What have we learned over the past 125 years since the Whitechapel murders and how can that learning enable us to make progress in the Jack the Ripper case?

It could be argued what we have learned and developed falls into these main areas although this list may not be totally exhaustive:-

- Investigative procedure.
- Legislation.
- Evidence search, recovery and preservation.
- Identification of persons by biometric means.
- Geographical profiling.
- Forensic use of scientific techniques.
- Photography and fluorescence light techniques.
- Investigative Psychology - Offender profiling Victim profiling.
- Police intelligence models and analytical techniques

How then can these developments assist us to progress the investigations of the Ripper murders? After all there has been no real new credible evidence but I would argue that the basic facts of the case themselves give us a defined activity space, journey to crime and some idea of the behaviours of both the offender(s) and the victims. This in itself can enable the use of some modern profiling techniques and from the outcome of that research perhaps key exhibits can be looked afresh, causing possibly interest to be generated in finding 'missing' forensic exhibits and police direct evidence in the form of reports, statements etc., with a view to possibly progressing the case.

The Jack the Ripper case is just like any other serial homicide case in that at the onset the offender often does not leave too many direct clues at the scenes although in this case some appalling gaffes have been made in not applying modern 20th Century onwards forensic science and working practices to the case, in times when more of the stored evidence was available. The carelessness by which no foresight was applied to retain the Ripper case evidence in test condition for future generations is in hindsight quite staggering. As late as the 1970s when a BBC team examined the evidence much of it was still available but now alas it is missing or mislaid (Ref 3). The opportunities for an effective cold case review can definitely be said to have been squandered but is there still a chance some progress may be made in the investigation?

The murder rate 1887 to 1889

Starting at the beginning we have to ask the question is this case a series homicide case or is it just a collection of similar incidents? A good place to start here is by looking at the murder rate in the UK of adult women the year before so in 1887 according to research by Colin Roberts (Universities Police Science Institute) 11 adult women were murdered by stabbing in 1887. In 1888 there were 17 adult women murdered by stabbing in the whole country with 8 of them murdered in the Whitechapel area.

This places 47% of the UK offences within a distance of around a half mile of Whitechapel High Street. In 1889, there were 11 murders of adult women in the UK with approximately 18% of them within half a mile of Whitechapel High Street. Given that the victims were all of a similar profile in that they were abandoned or widowed, semi-destitute women with drink problems, who were indulging in prostitution and living within about a hundred or so yards from one another, it is a reasonable assumption that we have a possible serial homicide case.

When the methods used by the offender together with the geographical distribution of the scenes are added to the profiles of the victims, the possibility that the case is a random collection of unrelated murders becomes somewhat unlikely. Further in support of this hypothesis another common factor in the murders was that the first two offences listed below were late committed on Bank Holiday Monday nights going into the next day, then in the rest of the 1888 Whitechapel murders they progress through only certain days of the week in sequence. I.e. Two on Bank Holiday Mondays going into Tuesday morning, then Thursday night into Friday, then Friday night into Saturday, then Saturday night into Sunday then back to Thursday night into Friday.

- Emma Elizabeth SMITH, seen late Bank Holiday Monday night 2nd April 1888, died from injuries 3rd April 1888.
- Martha TABRAM, seen late Bank Holiday Monday night 6th August 1888, her body is found early in the morning of Tuesday 7th August 1888.
- Mary Anne NICHOLS* seen late Thursday night 30th August 1888 to the early hours of Friday morning.
- Annie CHAPMAN* late Friday night 8th September 1888 into the early hours of Saturday morning.
- Elizabeth STRIDE* and Catherine EDDOWES* late Saturday night 29th September into the early hours of Sunday morning
- Mary Jane KELLY* seen late Thursday night 9th November 1888 and found in the early hours of Friday.

The list above includes the victims referred to as the five 'Canonical' victims* and these murders are generally accepted to be act of an offender termed 'Jack the Ripper' however there are another six victims who may be part of the series these cases being spread between 3rd April 1888 and the 13 February 1891.

The first two SMITH & TABRAM are listed above the others being:-

- Rose MYLETT murdered Thursday 20th December 1888.
- Alice McKENZIE murdered Wednesday 17th July 1889.
- An unknown female whose torso (The Pinchin Street torso) was found under a railway arch in Pinchin St Whitechapel, on Tuesday 10th September 1889 the date and time of death being unknown.
- Frances COLES seen late Thursday 12th February 1891 and was found at 2.15am Friday morning dying under a railway arch in Swallow Gardens Whitechapel.

From published work by Prof David Canter & Dr Donna Youngs, (Ref 1) the term 'Canonical' is referred to as an equation although it is best thought of as an analogy or metaphor where actions in a crime can be possibly related to the characteristics of an offender. (Ref 1) The actions termed 'A' include where, when and how a crime is committed. The characteristics 'C' cover all aspects of an offender which may be of value in the investigative process or court proceedings. So if $A_1 \dots n$ represents n actions of an offender e.g. time, place, & victim selection. Then if $C_1 \dots m$ represents m characteristics of the offender the empirical question is to establish the values of the weightings $F_1 \dots n$ and $F_1 \dots m$. In an equation with this form:

$$F_1A_1 + \dots + F_nA_n = F_1C_1 + \dots + F_mC_m$$

There are many solutions to such an equation but it is considered that the five Whitechapel murder cases with the best correlation are the five Canonical cases. That does not mean to say that some of the other cases are not part of the series nor does it confirm that they are. What is required to positively solve questions as to which are positively linked either to each other or an offender(s) is the fourth factor to add to the simple criminology model listing the location, offender & victim for an offence to occur; that is evidence. (Ref 2). So the concept of the Canonical equation in this concept is that it is an inference process about the likely relationships between A & C. Less formalised processes occur in the minds of investigators when they consider the facts of a case, then produce hypotheses on the balance of the evidence and facts available.

This process leads to seeking proof or supporting factors, which in turn can affect the decision making in casework, causing choices in the tasking of assets to research and possibly find evidence in support of the hypotheses produced.

The geographical distribution of the Canonical cases

The lodgings of all of the Canonical victims with the exception of Martha TABRAM are located within the red oval in Figure 1. Emma SMITH lived in George Street just North of Wentworth Street and Martha TABRAM in George Yard, just South of Wentworth Street, the street which runs East to West just below the area covered by the red oval. All of the others lived in Flower & Dean Street, Fashion Street and Dorset Street inside the oval area.

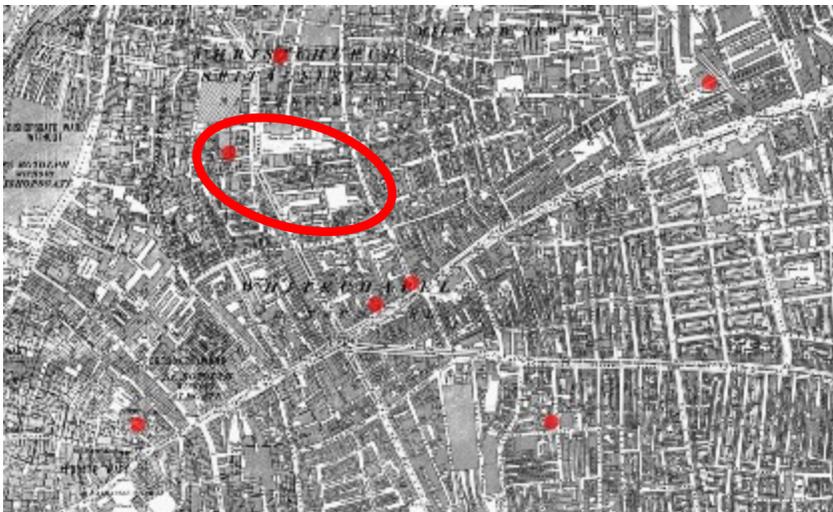


Figure 1 The distribution of the Canonical victims & lodging area of the victims

The map in Figure 1 is a late 19th Century map of Whitechapel and Spitalfields. In giving a weighting as to the answer to the question is this a serial murder case, the low UK murder rate of women by the method of stabbing combined with the temporal data, the living space of the victims, combined with the victims profiles reinforces the hypothesis that this was more likely to be a serial murder case.

The application of Geographical Profiling to the Canonical cases

The centre of the distribution of the sites of the Canonical victims crime scenes is depicted in Figure 2. (Ref 1).

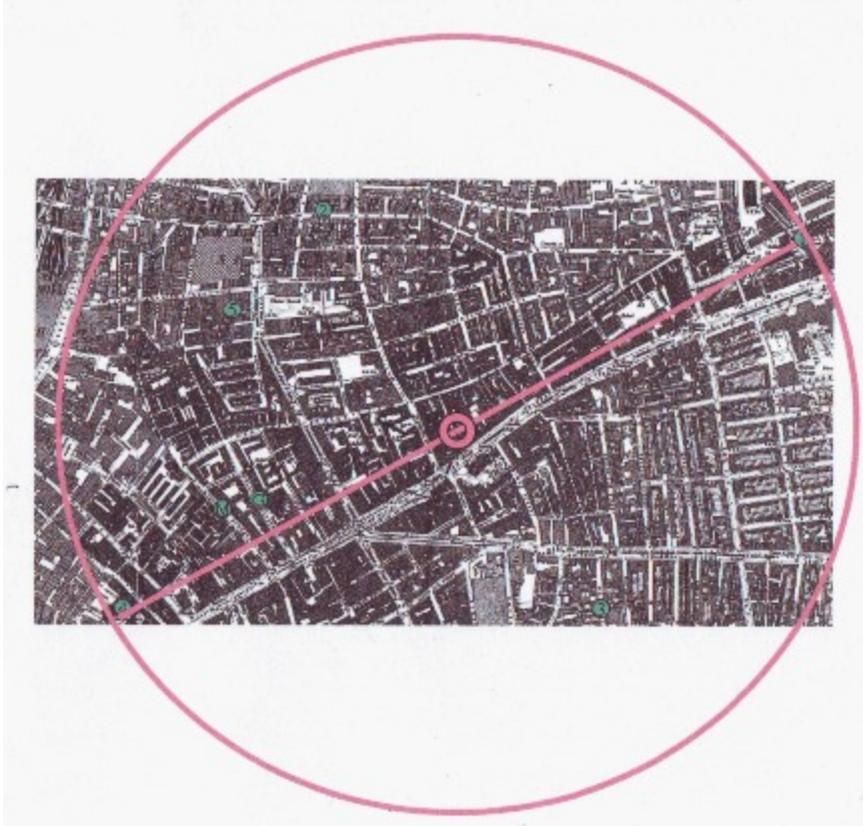


Figure 2 Centre of distribution of the Canonical murder scenes just

The principle upon which geographical profiling software used is founded is simply that from empirical research it has been found probable that an offenders home, work or other anchor point can be at any of series of distances from the scene of a crime. With several crime scenes plotted there is a decay factor with increasing distance from each crime scene which provides a probability surface as an indicator of an offender being based within any range of locations within the area of the crimes.

Where the probability surfaces overlap as depicted in Figure 3 below there is possibly a higher probability in the overlapping nodes that the offender has an anchor point in those areas.

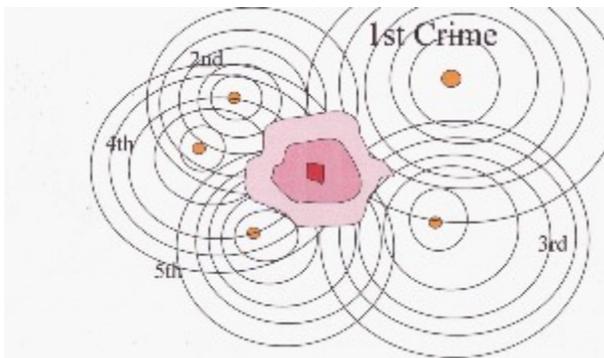


Figure 3 Probability surfaces surrounding the Canonical murder sites with overlapping zones.

The hypothesis in this model is that there is possibly a higher probability that the offender is based in the overlapping zones. A different approach is used by Ian Oldfield a geographer and former police officer who produced a geographical profiling product designed for the tasking of the Metropolitan Police in London, who are tasked to seek offenders based on geographical and crime analysis data. When Oldfield's software is applied to the sites of the Canonical victims with other data, covering the possible journey to crime, behavioural and scene linking data the result is depicted in Figure 4 below.



Figure 4. Ian Oldfield's geographical profiling map based on the Canonical victims' murder sites.

In Figure 4 the red zone indicates where to place patrolling and surveillance officers to look for the offender. This zone is coincident with the lodging area of most of the victims and the secondary brown zone is skewed towards the main thoroughfare and social centre Whitechapel High Street. The tertiary green zone encapsulates all of the lodging locations of all of the Canonical victims. The questions arising about the journey to crime for each victim, concerns issues such as why did they move considerably away from their lodging area and favourite places, where they may have picked up clients seeking prostitutes? This may indicate that the offender was a regular customer and the victims thought they were safe in that persons company. The offender not wishing to be caught has selected a number of locations within walking distance in the area but not close to the previous murder site. This is indicative of either a neighbourhood marauder offender who lives in the area or a commuter who perhaps used the steam railway or tram to Whitechapel High Street the insertion point being the railway station. Against this argument are the late times of the offences which perhaps support the hypothesis that the offender lived locally in 1888 through to 1889.

In researching the locations where the victims were found there is a further potential linking factor indicating a feature of the offender's behaviour in that the sites chosen to attack the victims of similar profile are also similar.

- Martha TABRAM found on a landing in a building located down a narrow passage called George Yard (Now called Gunthorpe Street).
- Mary Ann NICHOLS found in Bucks Row a narrow cobbled passageway.
- Annie CHAPMAN found in a rear yard at Hanbury Street accessed via a narrow passageway.
- Elizabeth STRIDE found in a yard at the side of 40 Berner Street accessed via a narrow gateway.
- Catherine EDDOWES found in Mitre square accessed by a narrow passage.
- MARY Jane KELLY found inside a room in Millers Court accessed by a narrow passageway.

In addition to the features described above it has been suggested that the murder of Martha TABRAM was different in method to the later Canonical victims in that multiple stab wounds with a short bladed weapon totalling around 39 stab wounds were one feature and the other wounds were thought to be from the use of a long bladed weapon such as a bayonet, whereas the later victims in the main had their throats cut and mutilations. One perception however seems to be that the offender has the appearance of being practiced in method. There does not seem to be much of an experimental learning period revealed by the evidence at the scenes. In this Century the serial murders of prostitutes in the Ipswich area perpetrated by Steve WRIGHT are an example of a case where the victims possibly thought they were safe with WRIGHT because he was a known client. It is possible the murders in Whitechapel were carried out by an individual with a similar relationship with his victims. Catherine EDDOWES according to a witness, the superintendent of the lodging house, who states he spoke to her on the day of her murder said she had told him she knew who the Whitechapel murderer was. (Ref 3).

The environment on the streets of Whitechapel

In consideration of the living spaces of the victims and possible suspects at the time it is possibly useful to look at the general safety of the public and the performance of those policing the area. Once it was generally suspected by the public that a serial murderer of women was at large, the cases became a focus of intense media attention, which was networked by telegraph across the World. Extra police were drafted into the area and the local citizens themselves set up The Whitechapel Vigilance Committee. In August going into September 1888, the perpetrator could not have failed to notice the activity and may well have been stopped by police and Vigilance Committee members.

There are police reports in the National archive recording the fact that at times private enquiry agents working for the Vigilance Committee would approach witnesses before the police attended themselves. In the course of researching this paper I interviewed the Great, Great, Granddaughter of a police officer Henry HANCOCK, who was drafted into Whitechapel from Wandsworth and Putney Divisions because of his skills to dress and impersonate a tramp on the streets, his nickname being 'The Masher King', so the effort by the police had some imagination and skill behind it. Henry retired from the Metropolitan Police in 1912.



"THE MASHER KING"
CAUGHT PICKPOCKETS ON HOLIDAY!
 --One known as "The Masher King" by pickpockets--
 London, Mr. Henry Hancock, aged 83 years, of 89, Woodrow, Woolwich, celebrated his golden wedding on Saturday. When a "K.I." reporter called on Friday, Mrs. Emma Hancock, who still enjoys good health at 90 years of age, was busy preparing for the celebrations.
 A native of Great Berkhamstead, Herts, Mr. Hancock was born in 1835. At 25, he joined the Metropolitan Police Force, and after being stationed at Wandsworth and Putney, was transferred to the East End to assist with the investigations into the "Jack the Ripper" murders. His success at catching pickpockets and shoplifters resulted in his being transferred to the O.I.D. in 1893. After being stationed at Kennington Road and Westcombe Park, he came to Woolwich 41 years ago, and retired in 1912 with the rank of detective sergeant.
 The nickname, "The Masher King" was given to him because he used to "dress up rough" so that he should not be recognized, and so keen was he on his job that he used to catch pickpockets while on holiday at Margate. On many occasions he was commended by the magistrates in London Courts.
 Among those invited to Saturday's celebrations were Mr. and Mrs. Hancock's four children, eight grandchildren, and four great-grandchildren.

Figure 5. Henry HANCOCK pictured in 1916 (left). The persons marked with 'X' are the father and Grandfather of Miss HANCOCK the then young girl front left.

With respect to The Whitechapel Vigilance Committee, they were according to press and penny dreadful reports quite prolific on the streets. The committee consisted of local residents and councillors some of them were Freemasons. George LUSK the Chairman of the committee was a local councillor, a professional builder and a member of the Doric Masonic Lodge No. 933. Lusk was a builder who made the plaster work and decorations in some of London's finest music halls, including Wiltons Music Hall, which has been subject to a £3 million renovation in this century and claimed to be the most beautiful music hall in England. George LUSK came to fame because of the package he received with a 'Ripper' letter, the famous 'From Hell' letter, which had packaged with it half a human kidney. The kidney was examined by Doctor OPENSHAW at The London Hospital and was found to be human. The timing of the receipt of the letter and kidney may be of interest because it followed the fourth Canonical murder and there was a gap in October 1888 with no further offences that month.

In consideration of this letter it is the only 'Ripper' letter which directly victimises a person with real human body parts enclosed with it. From the physical description of the kidney on how it was cut and that it may have exhibit signs of Bright's disease, it is possible the kidney may have been removed from the body of Catherine EDDOWES. Further it was thought that it was preserved in spirit and not formalin as routinely used by students at The London Hospital. Unlike most of the other letters sent to press bureaus and possibly created by mischievous journalists the LUSK 'From Hell' letter is not signed as Jack the Ripper but the author merely states the offenders actions in removing and preserving the kidney as a souvenir having eaten the other part.

I was fortunate to meet Mrs Peta TURNER who is the Great, Great, Granddaughter of George LUSK in June 2011. Peta related the family story handed down personally to her by her Great Grandmother whom she knew as a child. It appears the receipt of the letter and kidney really worried and frightened the members of the committee and led to a reduction of their activities.



Figure 6. George LUSK in his Whitechapel builders' yard. The girl on the tricycle to his left is Peta TURNER's Great Grandmother. *Permission Peta TURNER 2013.*



**Figure 7. George LUSK's Masonic Apron now located in Freemasons Hall London.
*Permission Peta TURNER 2013.***

There are two main hypotheses about the origins of the kidney, packaging and letter sent to George LUSK. One is that it was sent as a practical joke by someone with access to body parts at the local hospital. The other is that it is possibly from a 'Ripper' victim. As such this object is a potentially significant piece of evidence, which unfortunately is currently missing it, is believed to have gone missing in the late 1970s or early 1980s. Perhaps someone reading this article may have an idea as to the whereabouts of the 'From Hell' letter, the packaging or any of the biological material enclosed with it? The letter itself is a potential source of victim and or suspect DNA and latent fingerprints. So even though there are obvious difficulties at this time the case may yet be progressed. The OPENSHAW letter sent to Dr OPENSHAW, who examined the kidney, is stored in the National Archive at Kew so may be contaminated with material from a victim or a suspect?

Members of the Whitechapel Society have met with living relatives of victims. Susan PARRY, for example, the Chair of the society has met with the Great, Great, Granddaughter and Great, Great Great, Granddaughter of Catherine EDDOWES and information is known about the living family members and resting places of some of the suspects, so mitochondrial DNA sources exist even George CHAPMAN's set of fingerprints may be possibly be filed in an archive as he was a convicted murderer.

Some analysis of the facts and profiles in the Jack the Ripper case can be used to create a useful pecking order for the known suspects in the list. In modern investigations the correlation an analysis of crime and offender data is used to do exactly that.

It is of interest to note that within the concept of the development of Forensic Science Medical Jurisprudence is generally accepted to be the first topic developed from around 1788 onwards, as the basis of forensic medicine, yet the detail in the pathologists reports in the Whitechapel murders mentions mutilations and causes of death but does not detail evidence of sexual assault in the recording of for example dried seminal stains on the bodies or clothing. In one case a clay pipe possibly left behind by the offender was picked up and smashed with no attempt to preserve it even for possible identification by witnesses. The role of the common lodging houses in Flower and Dean Street, Fashion Street and Dorset Street area as centres for prostitution are not mentioned as such directly in police reports in the main. Although from a university dissertation by Norma BUDDLE (Ref 4), the paper cites the comments in 1902 by Wynne BAXTER the Coroner for Whitechapel, who observed that Crossingham's and White's Lodging Houses were locally known to be centres of prostitution. In 1902 a victim Mary Ann AUSTIN was told to expect a client at Crossingham's a lodging house where two previous Whitechapel murder victims had stayed in the 1880s.

The client described as a Russian 5ft 7 inches tall with a black moustache visited Mary and in the course of having sex stabbed her and tried to cut out her uterus. He decamped from the scene and the staff at Crossinghams rolled Mary down the stairs like a bowling ball and put her in a cab to the London Hospital where she died. At that time George CHAPMAN a now known serial poisoner of women had dispatched his second 'common law wife' and was between partners living according to Google Maps data 33 minutes' walk away in the Union Tavern Borough High street Southwark only some 15 minutes by tram. The lack of foresight in not retaining the evidence even in cardboard boxes for future examination and review means we cannot now easily eliminate CHAPMAN from that case or the other Whitechapel murders or any other suspect but we can still learn more and more about the Whitechapel murders as our knowledge of forensic science and associated technologies continue to develop.

Robert Milne MCSFS, FSS, MIAAI FA IA-IP

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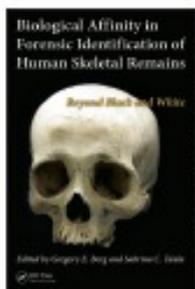
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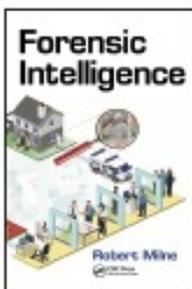


The technique of Electro Static Dust Print Lifting (ESL) at crime scenes dates back to the early 1970's. It is the ability to retrieve dust shoe marks from floors, carpets, upholstery where photography and conventional adhesive lifting film would be ineffective. The benefits of footwear lifting at crime scenes is fast becoming identified as the way forward especially as many criminals today are forensically 'aware' and take precautions not to leave fingerprints or DNA at the scene. However they must leave footprints which is where the CSI Pathfinder has proved most invaluable. The problem with ESL machines currently on the market is that they are bulky, costly, lack power when needed and often do not work because the connecting probes or leads have been damaged by the previous user. They can also be very dangerous to the operator because of the high voltage that is put out. The Pathfinder eliminates all these problems as it is small, lightweight, runs from a single PP3 battery available anywhere and does not use probes or leads. It also has built in safety features inasmuch that should the operator accidentally receive a shock it will not do any damage to him/her even if they have a heart pace maker. This makes this unit the safest ESL machine on the market today. Evaluated and now widely used by Police departments throughout the world, this small device is the best that money can buy.

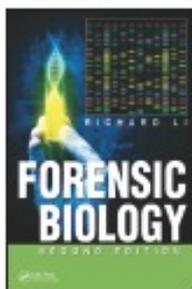
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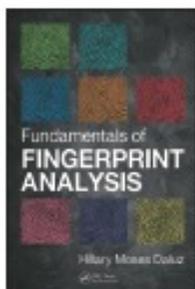
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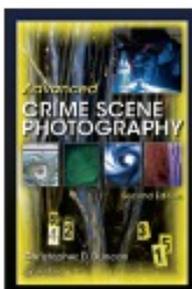
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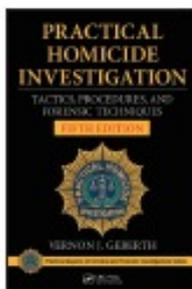
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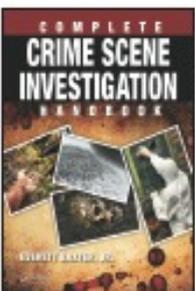
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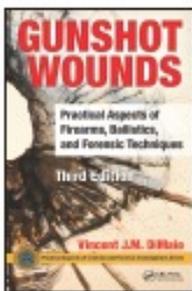
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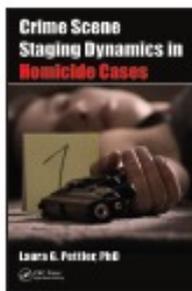
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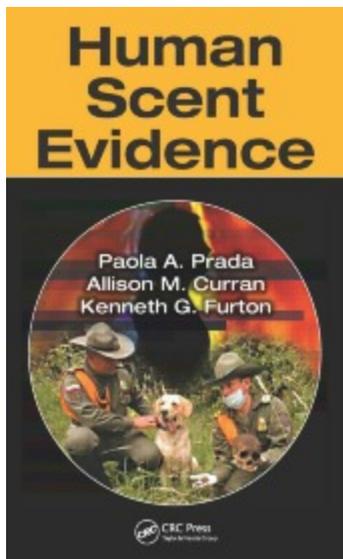


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AUTHOR INTERVIEW

Mark Listenwnik Senior Editor of Forensic Science books at CRC Press interviews Paola Prada, lead author of the book Human Scent Evidence, co-authored with Allison Curran and Ken Furton. The book is currently available for purchase now from www.crcpress.com.



Features

Presents human scent evidence from a chemical analysis perspective

Discusses experimental research findings from the authors' laboratory work

Examines canine scent work from multiple search categories as described in SWGDOG

Explores current trends in practical scent work in the U.S. and abroad

Provides novel perspectives on the uses of human scent evidence as a biometric and diagnostic tool

ML: Thank you all for taking the time to talk with us today, Paola.

PP: Huge thanks, Mark, for taking the time to discuss our book with you.

ML: Can you tell me who the audience you had in mind in writing the book and what was your motivation to write it?

PP: The audience we had in mind ranged from the active canine handler in practical field operations, the scientist in a laboratory as well as legal personnel in courts of law. We envisioned writing a book that could encompass not only the scientific part but also the practical implications of the subject. After working so many years in the laboratory and in the field, we saw the crucial need of compiling a book dedicated to human scent evidence. It was something that was lacking both in the scientific and in practical canine work.

There have been many books discussing canine training and theories of scent work, but up until now none had introduced the science and the animal behavior part together.

ML: You go into the composition of body secretions and go into the chemistry that makes up human scent. Does everyone have a unique scent? And, if so, are there studies that have shown this can be a reliable forensic tool—something that could tie an individual to a location or scene, even if there is a lack of other trace evidence?

PP: The field of human scent as a potential biometric tool is just at its infancy. At present, human scent evidence cannot be used as the only source of trace evidence in a court of law within the United States. However, the uncertainty and challenges of human scent could not be answered in a court of law, but in the laboratory and in the field. Even though canines have shown great accuracy in the determination and discrimination of human subjects, it was in the laboratory where a sound scientific approach was developed to show the reliability of this forensic tool for the first time in discriminating subjects up to >90% of the time. Our many studies, ranging from the compounds found in human scent, to the stability and persistence, have given a solid foundation to this tool that is only the start of giving this technique a more solid view when put to the test in criminal investigations.

ML: What, in your mind, has been the single biggest challenge or hurdle to using dogs—and possibly, in future, scent identification technologies—as part of police and investigative work?

PP: I would say I only wished we could talk to our four-legged friends when working with them! The challenge when using dogs for scent identification is that there are many variables within a specific setting that we sometimes cannot decipher all at once. The odor picture is a complex form. When conducting either a scent line-up or perhaps a live search in a neighborhood there are many things to consider ranging not only from the animal itself, his olfaction capability etc. but also the odor source itself. The age of the odor, the temperature, the surface where we are working, the experience of the handler just to name a few. Hence, when writing the book it was our intent to bring out all these different perspectives so that everyone has in mind the factors to consider in a given situation.

ML: This is probably a loaded question, but ... how is canine evidence or detection perceived historically in a legal context by the courts?

PP: Mark to be honest, canine evidence has had quite the challenges in our history! From early police work days, canines have been used but when placed to the test they have always been questioned. In a legal context, one of the challenges has always been the protocols utilized when canines are put to work. Hence, a central focus of our work has been to show how a scientific approach can validate those behaviors, as these four-legged friends cannot speak for themselves. Our goal has been to take those perceived uncertainties and doubts raised by the court system into scientific hypothesis we can put to the test in the laboratory. Even though the path has not been easy, we believe there is now a more solid understanding of the fundamentals of canine evidence and how it can help a case.

ML: If there is anything that you want people to take away from the book, what would it be?

PP: I would want our audience to value the work of so many handlers and canines that everyday, work day-in, day-out to help clarify complex cases. We want this book to open the interest of our audience into this relative new forensic tool that we only hope keeps growing in both the scientific and practical aspects. As scientists, handlers, or even lawyers, we sometimes overlook that canine work is a science in itself. We present protocols from different countries including Finland, Argentina, and the US SWGDOG guidelines to provide a range of work practices that together encompass one single goal....using odor as the missing link in a case. This book was designed to be used as a reader-friendly guide into the many aspects of human scent.

ML: Thanks again, Paola, for taking the time to discuss the book—we really appreciate it!

Author(s) Bio

Paola A. Prada, Ph.D., is an intelligence community postdoctoral research fellow. Her studies encompass interdisciplinary areas such as chemistry, animal behavior, and national security to address issues that are critical to effective intelligence and defense capabilities. She has worked extensively on developing instrumental methods for human odor identification for criminal investigations. Dr. Prada has also worked with canine scent detection in the context of optimizing odor collection techniques for scent training.

Kenneth G. Furton, Ph.D., is a professor in the Department of Chemistry and Biochemistry and Dean of the College of Arts and Sciences at Florida International University. His research has focused on the canine and instrumental detection of accelerants, biotoxins, currency, drugs, explosives, and humans (dead and alive). Dr. Furton's expertise in forensic science has been sought by the legal system for which he has testified dozens of times as an expert witness in state and federal courts.

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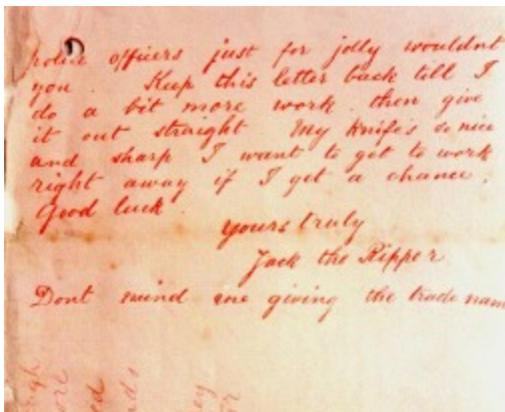
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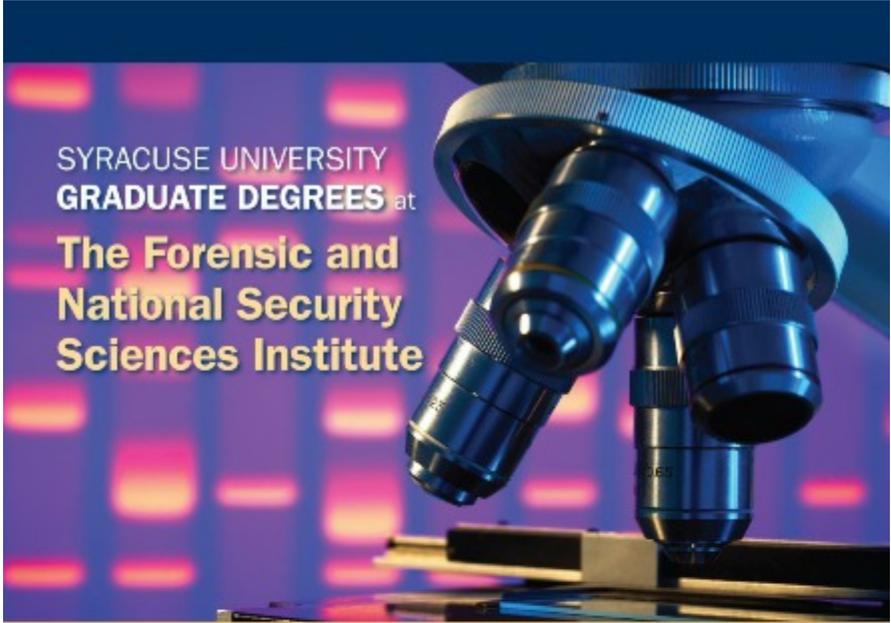


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