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Implication of Forensic Science for Private Security

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ABSTRACT

In today's time, when violence has made its home everywhere, where every day we get to see and hear about crimes and also come to know about such incidents, in such a situation a person is worried about his safety and the safety of his loved ones. Because of this, the dependence on private security has increased. This facility is available not only to the individual but also to his valuables and belongings. There are various in such agencies around us today which provide us with required facilities and trust, due to which we can remain safe in society. The application of forensic sciences also has an important contribution in making the private security strong, powerful and efficient, where-in forensic science includes streams like civil law, fingerprint, DNA analysis, and training on weapons, ballistics, arson & explosives. Therefore, with the help of forensics, these security services work well, and they are also responsible for preventing any unusual incidences. It is able to create a mundane and crime-free environment in society.

Key words: *Forensic, Forensic Security, Private Security, Arson, Civil Law, DNA, Glass, Explosive, Explosion, Drugs, Fingerprints, Weak Ballistics, Weapons.*

INTRODUCTION

Security related issues are influencing public consciousness more and more in the present day. Due to innumerable crimes in our culture, private security is vital addition to the police force. For the purpose to deal with violent crime and terrorist attacks, security personnel from private companies are currently required as a supplement to police departments. Forensic science techniques considerably aid law enforcement agencies as well as private security firms in their respective fields of expertise. Private security services can be supplied by contract securities companies, in house security personnel, or mix of both which may be of variable sizes.[1] These security companies deal with a lot of challenges. A large number of things have to do with the selection and instruction of the guards. There are occasions when the amounts of guards required for a circumstance is unpredictable like strike, blackout, riot, or other catastrophe.[2]

Prospective guards must be screened using scientific methods in order to give the greatest possible personnel. After these techniques are applied, the data must be categorized, chosen, and saved. These procedures also aid in selecting the right candidate for a particular role. The presence of a criminal record on an applicant's resume may influence the hiring decision of many security guard businesses. Scientific methodologies are used in forensic science to solve crimes. These techniques encompass ballistics, examination of drugs, DNA (deoxyribonucleic acid) tests, fingerprinting, explosives and arson investigations, and glass fragment examinations. When

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employing security personnel for private companies, it is imperative to do fingerprinting and test his urine, saliva, or hair for drug presence in order to determine the guards' eligibility for the job.

Aim and Objectives

1. Providing a complete explanation of the workings of private security through forensic.
2. To explain and deliver novel tales within the framework of the topic's discussion.
3. Recapitulating the contents of many forensic and investigative texts.
4. Matching the context and methodology of private security to forensics.

Materials and Methods

1. Textual evaluation is conducted by compiling data from several toxicological and forensic publications.
2. Past tasks completed.
3. A summary of the material derived from publications on toxicology and forensics serves as the foundation for the entire investigation.

Civil Law - Security firms may be involved in civil cases pertaining to litigations, in addition to criminal matters. Methods from forensic science are also used in civil cases. Cases under civil law differ from those under criminal law in a variety of ways. Cases involving civil law include those involving contracts, property law, family law, and negligence. One side (referred to as the plaintiff, claimant, or pursuer, depending on the nation) is suing another in a civil case (referred to as the defendant or defender).[3-4] There is no involvement from the prosecutor, and juries have various rights. Furthermore, there is a lesser burden of proof required to deem a defendant liable—the legal term for guilt—in civil law. Liability must only be established by the plaintiff by a majority of the evidence (likely rather than unlikely). The prosecution must establish guilt beyond a reasonable doubt, or with a very high degree of certainty, in order to establish guilt in a criminal court (CRPC, IPC, IEA).[5-6]

The security industry may be connected to certain civil law matters. A portion of the security surveillance involves making car rounds to various locations. There is a chance that one of these cars will collide with another vehicle. The identification of glass fragments is one of the points of interest in any collision case.[7-8] This analysis falls into a branch of forensic science, as we will see later. In the realm of private security, forensic science plays a significant role. The use of science in legal matters is known as forensic science. It is an umbrella discipline that encompasses many sub-disciplines, including toxicology, ballistics, document examination, DNA studies,[9-10] and trace evidence, in addition to drug testing and fingerprint analysis.[11-12] The field of forensic science known as criminalistics covers all of the aforementioned topics. Physical evidence is identified, examined, and interpreted in criminalistics. It is divided into four categories: pattern evidence, forensic chemistry, biological evidence analysis, and materials evidence analysis. The majority of research on these topics uses chemical and biological techniques. Spectroscopy (Nuclear Magnetic Resonance, Infrared or Mass), electrophoresis, and other techniques are used to examine issues related to chemical reactions, the separation of chemicals of forensic interest through analytical procedures, and enzymatic reactions. According to Gaensslen (2008), forensic science also encompasses fields like pathology, odontology,[13-14] entomology, forensic anthropology, psychology, and psychiatry.[15-16]

In order to solve a crime, physical evidence discovered at the scene must be analyzed. These techniques can also be applied to help with guard hiring. They can help gather information about a person and determine whether or not that person has a criminal record that disqualifies them from serving as a security guard. Specialized laboratories around the globe handle evidence analysis and other forensic matters. Forensic science laboratories are funded by the governments of many countries due to their importance to society. Depending on their size and staff count, these labs can have annual budgets of less than a million dollars or many millions. These labs may have sophisticated spectrophotometers, lasers, NMR (Nuclear Magnetic

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Resonance) and x-ray equipment, computers, and other analytical tools in addition to microscopes and other equipment. Physical evidence analysis is one of forensic laboratories' primary goals. Evidence pertaining to items discovered at the crime scene is referred to as physical evidence. Glass fragments, footprints, fingerprints, and tool marks are a few examples. Testimony, or spoken evidence—that is, information provided by witnesses—is an additional form of evidence in addition to physical evidence. [17] Physical evidence used in forensic analysis can occasionally contradict testimony given in court, which is not always entirely trustworthy. Although witnesses are prone to lying or forgetting crucial details, tangible evidence is frequently more impartial.

Fingerprints[18-20]: Fingerprints are among the most accurate ways to identify someone. Even identical twins' fingerprints differ from one another. Furthermore, they don't alter over the course of a person's life unless extremely uncommon circumstances arise (like severe skin damage). Fingerprints on friction ridge skin can be recognized by complex patterns known as loops, arches, and whorls. These were originally described in 1892 by Sir Francis Galton in his book Finger Prints.

Correct acquisition, storage, and analysis of fingerprints are essential for their appropriate use. An Automated Fingerprint Identification System (AFIS) can be used for this. These computer and software systems have the ability to match both known and unknown fingerprints. Throughout the USA, Agencies can submit fingerprint data to the Federal Bureau of Investigations' system, the Integrated Automated Fingerprint Identification System (IAFIS). More than 55 million fingerprints are stored in the IAFIS. Fingerprints are sent for non-criminal purposes such as employment and other occasions, in addition to arrested suspects (policeone.com, 2009).

As previously indicated, prospective security guard candidates might submit to a fingerprint examination to check for prior criminal activity. When new technologies enable the discovery of new information, AFISs can assist in the discovery of information regarding past crimes as well as those that are currently being committed. To get more accurate results, fingerprints can be combined with other biometric systems, like iris and retinal scans. Chemical substances secreted from the pores within the ridges on fingertips can be used to identify fingerprints. According to Sapse (2007), these substances are applied in a pattern that mimics the pattern on the friction skin. Ninhydrin is a chemical that is used in a very significant way to identify fingerprints. When this chemical interacts with the amino acids in sweat, it creates a purple-blue material in fingerprints.

DNA[21-23]: DNA is another component of forensic science research because it allows for extremely accurate identification of individuals. Deoxyribonucleic acid, or DNA, is a substance that is found in cell nuclei and is essential to many biological processes, including heredity. While not commonly used in the hiring of security personnel, DNA analysis may be used in the security industry to identify potential suspects at a crime scene. It can also detect whether a guard is present at a particular location. The CODIS (Combined DNA Indexing System) is a national DNA database maintained by the Federal Bureau of Investigations, or FBI, in the United States. DNA databases compare known DNA records with DNA evidence recovered from crime scenes.

A person's DNA can identify them with a 99.9% accuracy rate. National databases exist in other nations as well; two examples are the FNAEG in France and the UK National Criminal Intelligence DNA Database. There are numerous instances where DNA can be used to solve crimes. For example, a security guard at an apartment building was shot and killed in 2012. It was initially unclear who was responsible for the crime. The suspected murderer was visible on surveillance footage riding a bicycle close to the crime scene. The victim's employer, a security guard company, offered a $10,000 reward for information that resulted in an arrest. A sixteen-year-old was arrested a few days later and charged with the murder, armed robberies, and other offenses. In this case, the criminal's identity could be ascertained through DNA analysis. After a bicycle was left at the crime scene and its DNA was

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examined, it was discovered that the rider's DNA matched the suspect (Ingles, 2012). In a different instance, a security guard was charged with killing numerous women over a period of time apparently mostly prostitutes. He was accused of kidnapping, sexual assault, and murder.

Two of the victims' bodies—one discovered in 2002, and the other discovered more recently had DNA collected from them. The same individual's DNA was discovered to be present. The second victim's body was discovered close to a security guard's place of employment. The suspect was identified by the police after they showed the surviving victims images of the guards from the company. A match was made between the suspect and the guards thanks to their voluntary donation of DNA samples (Pinkerton, 2011).

GLASS:[24-25] Glass is another kind of significant scientific evidence. As previously demonstrated, glass identification at the scene of an automobile accident, for example, can be crucial. Certain characteristics, like density (which can be calculated from mass and volume) and refractive index, can be used to identify glass. The refractive index is a number that expresses how light behaves when it passes through a material, like glass. Another method of differentiating one glass sample from another is to find out what elements are in it. Since sand is the raw material for glass, the makeup of the sand will influence the composition of the glass. There will be differences in the glass because different types of sand have slightly different compositions. In terms of chemical composition, glass is made up of a variety of element combinations. Glass contains a wide range of elements in varying proportions, including silicon, calcium, and oxygen (Gaensslen, 2008).

Weapons & Ballistics:[26-31] Many crimes involve the use of weapons, so being able to identify which ones were used is helpful. Finding out who fired a gun can help you separate an innocent person from a criminal. It is necessary to analyze gun residues in order to get such information. Gunpowder residue, primer residue, bullet metal residue, and dirt residue are discovered on the suspect's hands and on other surfaces. The residue pattern left on a surface can be used to determine how far away the gun was fired. Occasionally, the pattern is readily discernible, but more often than not, it requires chemical enhancement to be seen. The study of a bullet's trajectory is known as ballistics. The location of the victim and the suspect can be ascertained in this manner. A portion of this data may originate from the victim's body's entry and exit injuries.

Arson And Explosive:[32-38] Explosives and arson are two categories of crimes that security personnel and the fire department look into in particular. Burning down a building is called arson. Originally, it only applied to the burning of another person's house; however, these days, anyone can burn any kind of structure, even their own, as long as it is done on purpose and not by accident. There are several explanations for why this crime is committed. It might be done to deceive law enforcement, for insurance purposes, or just to cause harm to property. We refer to the burning process as combustion. Carbon dioxide is created when oxygen and carbon interact in an oxidation process that releases heat.

Finding out whether a fire was started by arson, an accident, or a natural disaster is crucial when one occurs. Finding the source of a fire can be done in a number of ways. The goal of the investigation is to identify the point of origin, or the place where the fire originated. Multiple points of origin could suggest that the fire was started on purpose. Analyzing the burn pattern is one way to learn this. For example, the point of the cone could be the origin if the pattern is shaped like a cone. Furthermore, burn patterns can reveal how a fire was started. For instance, wildfires frequently follow a specific pattern as they spread faster uphill and outward. These patterns can also reveal whether gasoline or another kind of fuel was used to start the fire. Additionally, some kinds of burned grass and trees may be signs of a spontaneous fire.

Explosives are used in a lot of criminal incidents: Terrorist attacks and crimes directed towards specific people, like planting a bomb beneath a car, are examples of these crimes. There are agencies within local, state, and federal governments that deal with

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this kind of crime. Small energy is needed to initiate an explosion, and a lot of heat is released. It is obvious that security personnel need to exercise extreme caution to stop explosions and arson. Any strange sounds or smells that might point to the impending commission of an arson or bombing should alert the guards.

Drugs:[39-43] Drug-using security personnel can be a major issue. Guards may operate vehicles or carry weapons, and being intoxicated can have a serious negative impact on them. Additionally, guards occasionally need to make snap decisions, so drugs shouldn't impair their judgment. For this reason, a lot of security guard companies test potential hires for drugs. While some businesses test on a regular basis, others only do so upon client request and payment.

Cocaine, marijuana, opiates, amphetamines, methamphetamines, phencyclidine (PCP), benzodiazepines, barbiturates, methadone, tricyclic antidepressants, and other drugs are among those that can be tested for. A person can be tested for drugs in a few different ways. Testing of hair, saliva, or urine is three of the most popular. Everybody has benefits and drawbacks. Urine tests can detect a wide range of drugs and provide fast results, but there is a chance that they will be tampered with. Saliva testing has the benefit of being non-invasive, convenient, and able to identify recent drug use. The fact that the type of medication taken and each person's rate of salivation production vary are the drawbacks. Furthermore, it can only identify recent drug use. The most practical and efficient method is hair testing, but it can be more expensive and requires a longer waiting period. Moreover, it might not identify very recent drug use.

Conclusion

Forensic investigation for private security involves the application of specialized techniques and methodologies to uncover and analyze digital evidence related to privacy breaches or security incidents. This process aims to identify, preserve, analyze, and present evidence in a manner that adheres to legal standards and maintains the utmost confidentiality. The security industry is heavily involved in both preventing crimes and helping to solve them when they do occur, so understanding of forensic science techniques is an invaluable skill for security personnel.

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