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4. Role of Forensic Science in Criminal Investigation

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Abstract

In the last few decades, the forensic science has emerged as a remarkable step in the progression of investigation processes for the criminal justice system. Forensic science has become an indispensable tool in modern criminal investigations and the administration of justice. They are interconnected. Forensics applies scientific methods to found the truth in criminal cases. Forensic technologies plays a vital role in combating the offenders and establishes a pivotal link between the judiciary and the police. Forensic Science is a scientific discipline that aids the criminal justice system by analyzing and evaluating evidence from crime scenes to find out the truth. Its sole purpose is to provide support to the criminal investigations and in recognitions of not only accused but also of innocents. Important data has been collected from the criminal sites which plays deciding role in the trials. First time in the mid of 18th century the toxicology laboratory started in Madras for the examining of poison's deaths. They started to analyzing the viscera, saliva, blood and semen, for toxicological investigations. This paper explores the historical evolution, legal provisions, and operational dynamics of forensic science in India, shedding light on its significance in criminal investigations and trials. This study aims to find the existing correlation between the crime scene, Forensic science, the Indian criminal justice system, and the cases solved in India with the help of forensics. Hence, forensic science services might be the most significant crime combating device for the enforcement of law.

Keywords: Forensic Science, Forensic Technologies, Toxicological investigation, Evidence, Criminal Justice System, Modern Criminal Investigations,

Introduction

The term forensic science refers to the application of scientific principles and techniques to solve the legal issues. It can be defined as the scientific discipline which helps the criminal justice system after the analysis of the articles with the use of material science to go to the criminal and in turn the justice.¹ Forensic science serves as a crucial tool in this process by providing objective and



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reliable evidence, ultimately contributing to the pursuit of justice.² The purpose of this article is to find the existing relationship between the Indian judicial system, forensic science, and crimes. There are four basic parts of this system namely courts, prisons, police and punishment. These four parts are responsible for maintaining the social order in the region by delivering justice to the victims by punishing the offender through prosecution of the criminals. An ideal criminal justice system delivers a peaceful society. Accordingly, the peacefulness of a society depends on its criminal justice system as how it delivers its justices to all.³ There are various methods are used nowadays like examining the persons medically and physically, by taking fingerprints of the persons, through footprints and by many other ways. The evidence can be physical, testimony, or documentary evidence. In criminal investigations and legal proceedings, the physical evidence is of immense importance. It enables the investigators to determine facts and arrive at reliable conclusions. The role of forensic evidence in the Indian legal framework has evolved significantly over the years. Indian criminal law, primarily governed by The Bhartiya Nyaya Sanhita (BNS), Bhartiya Nagarik Suraksha Adhinyam (BNSS), and The Bhartiya Sakshya Adhinyam, is increasingly integrating forensic science into investigations and trials.

Role of Forensic Science in Criminal Investigation

Forensic Science also plays vital role in the criminal justice system. It identifies the physical and scientific evidences in an criminal investigation. It finds the person who has done the crime and also it accurately measures what type of crime has been done. It also gives findings of when it is done. It can also reveal the place where crime has been taken place. This type of investigation also reveals the method of crime. We can be said that the forensic science has completely changed the type of evidences and its accuracy. It reveals the clear connection between the criminal and the crime. The process of the investigation is like, collecting the evidence from the place where crime has been done or collecting the evidences from the person with whom crime has been done and then the outcomes of the investigations has been presented in the court of law. Although, facts of every case remains different and it creates new difficulties before the courts.⁴

Some Important Techniques used in Forensic Science to solve the crime-

Fingerprints- Fingerprinting is one of the oldest forensic techniques, It is the method of identification of a person through his or her fingertips using certain identifiable patterns such as loops, whorls, and arches. The development of these patterns occurs in the fetal development period and do not change in a person's life time. Fingerprints are analyzed to identifying suspects or to confirm the suspect's presence at the crime scene.



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DNA analysis is relatively to the study of specific genetic matter found in cells to identify an individual or trace biological connections. This involves comparing DNA found at a crime scene typically in blood, saliva, hair, semen, or other samples with DNA profiles in law enforcement databases.

Ballistics analysis examines firearms and ammunition linked to crimes. It does not identify individuals present at a crime scene, but it can link specific ammunition used in perpetrating a crime to a specific firearm. If that firearm can then be linked through purchase records, fingerprints, or DNA to an individual, then it can be used to establish an individual's presence at a crime scene.

Narco-analysis test: Narco-Analysis is a process whereby a subject is put to sleep or put into a drowsy state by means of chemical injection and then interrogated while in this state. Narcosis is a state of unconsciousness induced by drugs. This method has been utilized to add to the memory of a witness. During the process of Narco-Analysis test a person has no power to think due to the effect of drugs which is injected into him.

Legal Provision of Forensic Science in India

The relevance of forensic science to crime investigation and trial has to stand the limitation of law. The major question arise on forensic science is:-

a) What is the constitutional validity of such used forensic techniques in crime solving ?

Articles 20(3) of the Indian Constitution provide that no person accused of any offence shall be compelled to be a witness against himself. Its based upon the presumption that the accused person is innocent till proved guilty . It also protects the accused by protecting him from the possible torture during investigation in police custody. Article 11 of The Universal Declaration of Human Rights, states that “Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defense .Article 20 (3) of the Constitution of India guarantees fundamental right against self-incrimination and guards against forcible testimony of any witness. This right has been taken to ensure that a person is not bound to answer any question or produce any document or thing if that material would have the tendency to expose the person to conviction for a crime.

Judicial Approach

Tandoor Murder Case (1995) Delhi – It was the first criminal case in India solved by the help of forensics. In this case Shusil Sharma murdered his wife by firing bullets in to her body because of the misunderstanding that she had illicit relationship with her classmate Matloob Karim. After



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committing the sinful act he took her body in his car to the Bagiya restaurant, where he along with the manager of restaurant Keshav Kumar attempted to burn her in a tandoor there. Police recovered Sharma's revolver and blood-stained clothes and sent them to Lodhi Road forensic laboratory. They also took blood sample of Sahni's parents, Harbhajan Singh and Jaswant Kaur and sent them to Hyderabad for a DNA test. Lab reports Confirmed that the body was that of wife of Shusil Sharma, the DNA report said, "The tests prove beyond any reasonable doubt that the charred body is that of Naina Sahni who is the biological offspring of Mr. Harbhajan Singh and Jaswant Kaur and finally Mr. Shusil Sharma was found guilty with the help of forensic evidences.

In the **Aarushi Talwar murder case (2013) Noida**, Aarushi Talwar, was the daughter of 14-year-old daughter of a successful dentist couple, was found dead with her throat slit in her parents home at Jalvayu Vihar in Noida, a posh suburb of Delhi. Suspicion immediately fell on the family's live-in man-servant, Hemraj, a 45 year old Nepalese national, who was found missing from the home. But later on after the investigations were complete honour killing.

Conclusion

The techniques presented show their unique methodologies and applications which work together to allow the law enforcement agency to solve crimes far more accurately than ever before. A fingerprint is one of the oldest techniques used in the matching of suspects with particular crime scenes. DNA test identify an individual or trace biological connections with suspects and victims. Ballistics analysis examines firearms and ammunition linked to crimes. With the discovery of digital forensics, evidence can now be traced from digital sources starting from mobile phones and online communication. Together, they provide a multi-faceted approach towards criminal investigations by introducing both physical and digital evidence.

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