

THE USE OF FORENSIC EVIDENCE IN CRIMINAL TRIALS

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INTRODUCTION

The importance of forensic evidence in criminal investigations and trials is rising. It is an essential technique for connecting criminal suspects to crimes and can be used to determine guilt or innocence. The use of forensic evidence in criminal proceedings is, however, sometimes a contentious and complicated topic. This study will look at how India's Code of Criminal Procedure (CrPC) applies to the use of forensic evidence in criminal cases.

In forensic science, which supports the investigation and prosecution of criminal cases, the science of linking individuals, locations, and things to criminal conduct is studied. The procedure involves meticulously looking over the murder scene for physical hints. It is useful for identifying the offender, the incident, and the method used to conduct the crime. It contains evidence about the victim, the offender, and the criminal action, which aids in determining what took place at the crime scene. Forensic evidence gives "who, what, when, where, and how" answers to the crime that was committed. It is utilized by both the prosecution and the defense to prove the defendant's guilt or innocence beyond a reasonable doubt. Role of Forensic Science in the Criminal Justice System or The Protector, highlights the crucial yet frequently ignored role that forensic science performs.

Collection of Forensic Evidence:

- One of the most important steps in the criminal justice process is the gathering of forensic evidence. The steps for gathering forensic evidence are outlined in the Code of Criminal Procedure. A police officer may examine the accused medically under Section 53 of the Code of Criminal Procedure. The accused may consent to the medical examination, or the Magistrate may order it to be done. Using the medical examination,

forensic evidence can be gathered, including DNA, blood samples, and other bodily fluids.

- The police are permitted to collect the accused's fingerprints under Section 53A of the Code of Criminal Procedure. Since fingerprints can be used to prove a person's identification, they are regarded as a crucial type of forensic evidence. With the accused's permission or at the magistrate's direction, the fingerprints may be taken.
- The police have the right to search someone or a place of business under Section 165 of the Code of Criminal Procedure. If there are good reasons to believe that someone has committed a crime, the search may be carried out with or without a warrant issued by the magistrate. The search can be used to gather forensic evidence, including papers, electronic equipment, and other potential investigation-relevant things.

RESEARCH METHODOLOGY

This research will be qualitative in nature. Therefore, the basic sources, such as statutory legislation, will serve as the paper's foundation in addition to the data obtained for qualitative analysis. Additionally, it will draw on secondary sources like books, websites, reports on news and research, papers from national and international journals, and more.

LITERATURE REVIEW

Forensic evidence has become an important aspect of criminal trials in many countries, including India. The use of forensic evidence in criminal trials can help to provide crucial information about a crime, and can help to ensure that justice is served. In India, the Code of Criminal Procedure (CrPC) outlines the procedures to be followed when using forensic evidence in criminal trials. This literature review will examine some of the key studies and articles that have explored the use of forensic evidence in criminal trials under the CrPC.

The use of forensic evidence in criminal trials conducted in accordance with the CrPC will be examined in this examination of the relevant research and articles.

In 2015, Piyush Gupta and K. N. Pathak conducted research on the use of forensic evidence in Indian rape cases. The study discovered that forensic evidence was frequently not used in these instances and that police and prosecutors lacked knowledge of how to use forensic evidence successfully. The study suggested that further instruction and training be given to police and prosecutors to help them grasp forensic evidence and its application in criminal prosecutions.

Shabnam Khan and P. J. Alexander's (2017) investigation on the admissibility of forensic evidence in Indian courts was part of a larger body of work. The study indicated that concerns with chain of custody, contamination, and other factors frequently presented obstacles to the admissibility of forensic evidence. Clearer policies and procedures for the management and admission of forensic evidence in criminal proceedings were advised by the study.

Sangeeta Bhargava (2018) examined the use of DNA evidence in her article.

BACKGROUND

The CrPC is a detailed legal document that spells out the steps to be taken during criminal trials in India. It was initially passed in 1898 and has since undergone numerous amendments. The rules of evidence, including the acceptance of forensic evidence, are outlined in the CrPC. Any evidence that has been gathered and examined using scientific techniques is referred to as forensic evidence. This covers physical evidence such as ballistics, DNA analysis, and fingerprinting. Technology advancements in recent years have led to an increase in the use of forensic evidence in criminal prosecutions.

Technology advancements have increased the use of electronic and forensic evidence in criminal proceedings. The use of digital communication has increased, and there are now various methods and tools for examining forensic and electronic evidence. Additionally, there has been a rising understanding of the significance of incorporating such evidence in criminal proceedings since it can contribute to painting a fuller picture of what transpired in a specific case. However, there are several issues with the use of forensic and electronic evidence in criminal prosecutions. The validity of such evidence is one of the primary issues. Both forensic evidence and electronic evidence are susceptible to contamination or improper handling. Additionally, due to the tight regulations and processes that must be followed when introducing

evidence in a trial, there are frequent concerns regarding the admissibility of such evidence in court.

Electronic and forensic evidence is still a crucial instrument in criminal investigations and court cases despite these worries. In addition to helping to guarantee that justice is served in criminal situations, it may be able to provide critical information that would not otherwise be available. Electronic and forensic evidence will probably be used in criminal proceedings even more frequently in the future as technology develops.

TYPES OF FORENSIC EVIDENCE

Any item that can be utilised to assist in the investigation of a crime or legal issue is considered forensic evidence. Some of the most typical forms of forensic evidence are listed below:

1. **DNA Evidence:** DNA evidence can be used to identify suspects, victims, and other people connected to a crime. Blood, saliva, semen, hair, and other biological substances all contain DNA.
2. **Fingerprints:** To locate suspects and connect them to crime sites, fingerprint analysis is used. Evidence of fingerprints is gathered from materials like glass, metal, and plastic.
3. **Ballistics Evidence:** Using ballistics analysis, it is possible to determine the kind of weapon that was used in a crime as well as the angle and range at which the bullets were fired. Bullets, shell casings, and other firearm-related items are sources of ballistics evidence.
4. **Forensic Toxicology:** The study of drugs and poisons in human bodies is known as forensic toxicology. Blood, urine, and other physiological fluids are used to gather toxicology evidence.
5. **Trace Evidence:** Small fragments from crime scenes, such as fibers, hair, and soil, are referred to as trace evidence. Trace evidence can connect several crime sites or assist tie suspects to a crime scene.
6. **Digital Evidence:** Data from electronic devices like computers, cell phones, and cameras is considered digital evidence. Suspects can be tracked and their online actions can be discovered using digital evidence.

7. Document Analysis: Paper, ink, handwriting, and other materials used to make documents are all examined through document analysis. The authenticity of documents and signatures can be ascertained with the aid of document analysis.

9. Toolmarks Evidence: A crowbar or screwdriver can be used to identify the tools used in a crime through tool marks analysis. Evidence of toolmarks is gathered from surfaces such as doors, locks, and windows.

10. Firearm and Toolmark Evidence: To pinpoint the precise weapon or instrument used in a crime, firearm and toolmark evidence is used. It contains a review of the bullet, shell, and tool residue found at the scene.

Overall, the utilization of forensic evidence by investigators and courts is a crucial tool for resolving crimes and ensuring that justice is done.

LEGAL PROVISIONS OF FORENSIC EVIDENCE IN INDIA

As crime and technology have changed over time, so have the legal requirements for forensic evidence in India.

1. The principal piece of legislation controlling criminal procedure in India is the Code of Criminal Procedure (CrPC). It outlines the processes for a criminal offense's investigation, arrest, trial, and punishment. The use of forensic evidence in criminal proceedings is addressed under a number of CrPC provisions.
 - Section 53: This section outlines the requirements for the medical evaluation of suspects. The examination could involve the gathering of biological samples for DNA testing, such as blood, urine, and semen. The requirement also states that a licenced medical professional must conduct the examination.
 - Section 293: This section specifies when forensic reports are admissible in court. The report must be created by a forensic science laboratory that has received government recognition, and it must be backed by a certificate from the analyst.

- Section 311: This section gives the court the authority to compel someone to testify, present papers, or do anything else that might be pertinent to the case. This involves calling forensic professionals to testify in court.
2. The Indian Evidence Act establishes the rules of evidence that are used in Indian courts. It sets rules for the weight, applicability, and admissibility of evidence in criminal proceedings. The use of forensic evidence in criminal proceedings is covered by a number of clauses in the Indian Evidence Act.
 - Section 45: This section enables a forensic scientist or other expert witness to be questioned in court. It is necessary for the expert to have in-depth knowledge of the subject and to express an opinion.
 - Section 47: This section outlines the conditions under which expert testimony may be admitted into evidence. The opinion must be supported by facts, and it must include justifications for the position.
 - Section 73: This part allows for the identification of a person through the comparison of handwriting, signatures, or finger impressions. Using forensic evidence, such as fingerprint analysis, is part of this.
 - Section 87A: This provision specifies when electronic records, including digital evidence, are admissible. A manager of the computer or other device used to create the record must certify the evidence.
 3. Information Technology Act: The Information Technology Act was passed in 2000 and is responsible for regulating digital and electronic trade in India. In addition, it has clauses that deal with the use of electronic evidence in court cases involving criminal defendants.
 - The admissibility of electronic evidence in court is outlined in **Section 65B**. A certificate from a forensic science laboratory that has received official recognition from the government must be submitted with the evidence, which must also have been gathered and examined in accordance with the established protocols.
 - Section 85: This section outlines the responsibility of those who violate the Act. This covers the purposeful deletion or alteration of electronic evidence.
 4. Supreme Court Guidelines: The Indian Supreme Court has also established rules for the admissibility of forensic evidence in criminal proceedings. These recommendations

place a strong emphasis on the requirement for adequate evidence gathering, analysis, and storage as well as the requirement for expert testimony to interpret the evidence.

- The Supreme Court has emphasized the need for government-recognized forensic science laboratories, as well as for the proper training and accreditation of forensic experts.
- The court has also made a point of stressing the necessity of following adequate chain of custody protocols to guarantee the validity of forensic evidence and for accurate documentation of the investigation and interpretation of evidence.
- The requirement for expert testimony to analyze the material and explain its importance to the court has also been stressed by the court.

Overall, the legal requirements for forensic evidence in India place a strong emphasis on the necessity of competent evidence gathering, analysis, and interpretation by qualified professionals.

ROLE OF FORENSIC SCIENCE IN CRIMINAL INVESTIGATION

In general, forensic science is the application of science to the law and is defined as the judicial disputes through science (Jackson et al., 2008). Occasionally, forensic science is only viewed in terms of what takes place in a lab rather than the more general concepts that are applied at a crime scene. Directly covered are the sciences of the field, the laboratory, and medicinal use of forensic science. It requires integrating numerous scientific discoveries into the legal framework (Saferstein, 2001). Forensic science is typically much more frequently employed to look into and resolve criminal matters than civil situations (Feldman, 2009). And "criminalistic" is the name of the academic discipline that focuses on forensic science in court cases (Houck & Siegel, 2009).

Criminalistics is a branch of forensic science that looks at physical evidence to help with case identification and investigation. It establishes a relationship between a person and an item or group of people they come into contact with through the analysis of physical evidence. The amount or percentage of chemicals in a particular sample or the timing or order of events that occurred during an incident are just a few of the additional details that forensics may reveal

and that may be crucial to a case (Forensic Science in 21st Century Criminal Justice | Anti Essays). It is challenging to identify homicide or murder using only tactical investigative tactics since these crimes are typically conducted in unclear and complex ways. It is challenging to obtain confessions or eyewitness testimony because the crime is committed secretly and in private. So forensic science mainly depends on physical evidence to perform all of these duties. In this case, time is also not a major concern if they are properly obtained and stored. It is evident that forensic evidence is crucial to identifying the suspect and proving the claimed offense in criminal investigations and judicial proceedings.

SIGNIFICANCE OF FORENSIC SCIENCES

Police investigations and legal trials both depend heavily on forensic science. To assist in the prosecution of offenders and the release of innocent persons, forensic professionals analyse evidence from crime scenes and other sources. Justice is upheld and the offender is identified with the aid of forensic science. The following describes the importance of forensic science:

- **Crime tracking:** Computer forensic science can be used to find the criminal's computer, mobile device, and email account who is suspected of perpetrating the crime. Additionally, it's feasible to follow the criminal's IP address and pinpoint the place from where he accesses the website. He uses SMS and call records to connect with others, and computer forensics may be able to recover these records as well.
- **Identification of the suspect:** Every crime scene has physical evidence that the perpetrator left behind, including DNA, biometric fingerprints, and other types of proof. Forensic science can successfully identify the offender by evaluating the physical evidence discovered at the crime site.
- **Linking the accused to crimes:** The utilization of trace evidence establishes a connection between the crime and the culprit. Due to their small size, traces of evidence may unintentionally spread over surfaces. And the investigator may receive strong leads from such gathered evidence from crime scenes. Trace evidence can be dispersed during a crime across persons, objects, and the environment.

- **Determine the method and cause of death:** An autopsy or postmortem examination can be used by forensic science to determine how and why someone died. The autopsy, also known as a postmortem examination, is a comprehensive examination of the deceased individual to check for any indications of wounds, illness, poisoning, or other factors that might reveal the cause of death. Police detectives and forensics specialists work together to determine what caused the death. To ascertain how and why someone died, forensic pathologists may also speak with anthropologists or entomologists.
- **Determining child abuse extent and sexual assault:** evaluation of sexual assault and the level of child maltreatment according to Kingsley (2015), forensic science is essential for identifying child abuse, self-inflicted injuries, sexual assault, and persistent sperm semen. It also helps identify defensive wounds violence. Knowing the ingredients in alcohol. According to Kingsley (2015), forensic science is essential for identifying child abuse, defensive wounds on a victim, bullet wounds, injury patterns in victims of domestic violence, self-inflicted injuries, sexual assault, and persistent sperm semen.
- **Identifying alcohol's constituents:** The detection of drugs in criminal tissues, as well as the amount of drugs and their metabolites, can all be determined by forensic science. By analyzing the blood, urine, or other biological samples that were collected, that were taken from the defendant.
- **Establish the guilt or innocence of possible suspects:** It is difficult to prove beyond a reasonable doubt if the suspect is guilty without an eyewitness either performed the deed or did not. However, forensic science can confirm whether the suspect was actually involved in the crime or not. It can be utilized to assist in a suspect's identification as well so as to reveal significant links between the suspect and the crime. As a result, it aids the court in determining the guilt or innocence of potential suspects.
- **Narrow the range of possible suspects:** It is feasible to use forensic evidence to link crimes that are thought to be connected. DNA evidence, for instance, may link a suspect to many crimes. The investigating officer can identify and bring to justice fewer suspects by using the connections between the crimes.

ANALYSIS

When using forensic evidence in criminal proceedings under the CrPC, there are a number of rules and processes that must be followed. For instance, according to the standards of evidence, forensic evidence must be relevant, reliable, and validated in order to be admitted into evidence. The evidence must also be obtained and evaluated in accordance with the rules using methods that are scientifically valid.

Additionally, the CrPC permits the hiring of experts who can testify as to the validity of the forensic evidence. To challenge the validity of the evidence, the defense attorney may cross-examine these experts.

CONCLUSION

There have already been several notable scientific advancements in the field of forensic science. It has earned a reputation for being an expert in resolving criminal matters and is regarded as the gold standard of proof. The application of forensic science in criminal investigations and the judicial system yields valuable data that cannot be obtained through other traditional investigative techniques. By providing scientific data and reviewing tangible evidence to reconstruct the crime scene, forensic experts help the investigating officer. As a result, there are now many choices for resolving legal disputes thanks to the assistance of science. However, forensic science is a growing subject. As a result, there are now many choices for resolving legal disputes thanks to the assistance of science, to find criminal and secure justice, experts in criminal investigations need to be better trained in the collection, preservation, and analysis of evidence.

An essential component of India's criminal justice system is the use of forensic evidence in criminal trials conducted in accordance with the CrPC. However, there are a number of regulations and procedures governing the use of forensic evidence, and its admissibility is sometimes disputed. According to the CrPC, expert witnesses can be called to testify as to the reliability of the evidence, but their testimony is open to cross-examination by the defense attorney. In criminal prosecutions conducted in accordance with the CrPC, the use of forensic

evidence is a developing legal area that necessitates careful consideration of both the validity of the evidence and the rights of the accused.

