

Forensic Science has a significant role in the criminal justice system

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Abstract - In recent times, the use of technology in criminal investigations has been a main achievement in criminal justice advancement. The courts, on the other hand, consider these tangible evidences, which are otherwise unfailling, and evaluate the offender's innocence or guilt with greater precision. The use of technology in criminal investigations has grown inextricably linked to the criminal justice system's efficiency and efficacy. It is a branch of technology that acts inside the constraints of the legal system. Its task is to offer assistance to individuals engaging in investigations as well as accurate statistics to courts to be used in the decision of criminal and civil disputes. Our study's purpose is to examine the criminal framework that governs the software of Forensic Science. Furthermore, despite major technological improvements in recent decades, the Function of forensic technological know-how in Indian criminal justice has remain. or limited, as will be investigated in this study. The goal of forensic investigation and trial should be to provide outcomes, so that victims of heinous atrocities obtain speedy redress and justice.

Keywords - Criminal Justice, Evidentiary value, Forensic Science, Legal approach.

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INTRODUCTION

With a single click or blink, no one obtains justice. It necessitates numerous manoeuvres. Many people are deceived by Hollywood films or web series that depict situations being resolved in less than an hour. It's not the same. Serving justice to an individual takes time, patience, energy, and numerous steps. From crime to police inquiry to judicial proceedings to judgements and convictions. Legitimacy has always been a hallmark of a progressive and democratic society. Judges have long been regarded as the backbone of the legal system. The judicial system has evolved significantly throughout time. As a result, technology and procedures have become increasingly important in solving crimes. Forensic science lends a hand here. Government agencies like as the police, CID, and CBI enforce criminal and civil laws. In the context of criminal justice. The application of scientific understanding to legal circumstances is referred to as forensic science. "Forensics" is derived from the Latin word "forum." Assuring the preservation, gathering, and analysis of evidence used to prosecute criminal cases is forensic science. Medicine, biology, pharmacology, chemistry, and other scientific disciplines are used in forensic science. The blood found on the site, for example, is blueprinted using physics. Chemistry can help detect the cause of death or the pharmaceuticals present in the corpse, while biology can help identify the deceased.

After the crime is committed, the investigating officer seeks to collect as much evidence as possible. Small proof can revert the case, thus they must probe meticulously. In order to solve crimes and other terrible crimes, forensic science is essential. To better understand the concept, consider the collision of two buildings. In this instance, forensic civil engineers will investigate the collapse of the structure and provide their findings to the court. Based on the evidence, the court will reach a decision.

In the criminal machine, the idea of forensic Science isn't a brand new one. Argentina was the first country to employ forensic evidence in a criminal trial when it did so in 1902. The suspect's fingerprints were submitted by Sir William Herschel. The Indian judiciary is no exception. Modern forensic methods such as narco-analysis and lie detectors have recently become more popular. There is no such thing as an ideal crime, according to forensic research. It promotes equitability by punishing the guilty and forgiving the blameless.

Criminal justice and scientific research meet in forensic science. In both criminal and civil matters, it has important ramifications for the parties involved. So-called forensic evidence refers to the physical evidence that has been uncovered at a crime scene. There is a strong emphasis placed on the evaluation of scientific and physical evidence that has been

gathered at the crime scene. The shards of evidence obtained on the scene of the crime are crucial in motivating a fair judgement. They are classified as secondary evidence, with documents serving as the primary source of information. In a court of law, primary and secondary evidence are offered, which assists the court in understanding the facts and rendering a judgement.

Forensic science discusses the uniqueness of the perpetrator of the crime. The nature (what) of the offence is clearly defined by the evidence. The timing of the incident is also included in the circumstantial evidence. With the assist of forensic proof; it's miles viable to pinpoint the region of a crime (where crime scene happened).

The value of forensic science in the legal and justice systems is well acknowledged. In criminal cases, evidence is required. This is because there is little opportunity for injustice and bias when scientific procedures and techniques are used. It entails the application of evidence analysis techniques from a range of domains, including chemistry, physics, Computer technology, biology, and engineering, amongst others. For instance, biology is utilized to decide the beginning of an unidentified suspect, physics is used to decipher a blood splatter sample, and chemistry is used to decipher the composition of narcotics.

In a trial and investigation of a case, forensic science assists in analyzing several features such as DNA, fingerprints, blood samples, chemical and toxin tests, and so on. Forensic evidence is also utilized to connect seemingly unrelated crimes DNA evidence, for example, can be used to either link a single culprit to multiple crimes or crime scenes or to exonerate those who have committed the crimes. Forensic evidence also assists law enforcement personnel in linking incidents, restricting the field of possible suspects, and establishing crime patterns that can be used to identify and convict persons.

INVESTIGATING CRIME WITH FORENSIC SCIENCE

Forensic Technological know-how is one of the most vital elements of justice, and it has a wide range of applications. It entails the scientific evaluation of physical evidence gathered at the scene of a criminal offence. Forensic science explains the identification (persona) of a suspect who is suspected of having committed a crime. The evidence truly demonstrates the nature of the crime that changed into committed. The circumstances reveal the date and time of the incident. Location of the crime (where/crime scene) is established through forensic evidence. The forensic inquiry uncovers the offender's method of operation. Finally, it establishes the crime's motivation. The offender's and victim's identities are reconstructed by forensic investigators.

An individual or a criminal scene is searched for evidence, which is then taken away, analyzed in a lab, and then presented in court. Everyone's case is unique, and every crime scene is unique as well.

It is essential justice gadget as it offers scientifically solid information via analyzing bodily evidence and validating the wrongdoer's identification through employing personal identifiers which include fingerprints, tracks of footsteps, blood drops, and hair. It establishes a link among the crook and the crime via artefacts left on the scene of the crime that have been transferred far away from the scene and the victim through the criminal. On the other hand, the evidence presented does not establish a connection between the accused and the victim or the murder scene, the accused's innocence is established. As a result, forensic science provides assistance to those who are defenseless. In its early stages, DNA technology, a novel type of forensic science, has provided investigators with a significant quantity of information. Letting them become aware of the perpetrator definitely on the idea of proof left at the crime scene.

A criminal inquiry is incomplete without forensic science. No one can be convicted of a crime without an eyewitness; hence forensic science is essential here. While detectives and law enforcement agencies acquire evidence, forensic science analyses it to uncover facts that can be used in court. No forensic science means homicide accused, thieves, drug dealers, and rapists are free to roam. A forensic scientist's duties in a criminal investigation include properly evaluating evidence and guaranteeing its integrity. A criminal investigation uses a variety of forensic tools. Forensic pathologists can do autopsies to identify the cause of death as post-mortem examines the biological fluids and tissues to set up the reason and way of demise. Forensic specialists compare physical proof to pick out culprits (fingerprints, blood, hair, and many others). Forensic investigators use picture manipulation technologies to track down long-term criminals. This tool may digitally age a photo to see how the person would look at different ages like in the movies *Silence of the Lambs* and *Criminal Minds*. The FBI is said to have invented criminal profiling in 1888.

THE ART OF CRIMINAL PROFILING - BECOMING INTERESTED IN THE MIND OF A FRAUDSTER

Suspects can be identified based on their routines and dispositions. An offender's possessions are evaluated psychologically. This aids in the offender's social and psychological assessment. Though the accuracy, efficacy, and scientific validity of Profiling of suspects are widely questioned but it is a great tool to solve complex crimes or to identify serial offender. The crime scene is inspected and compared to comparable crimes that have occurred in the past, the victim's background and activities are

assessed, all possible reasons are investigated, and the suspects are described in detail. The victim's background and activities are reviewed

SIGNIFICANCE OF FORENSIC SCIENCE IN LAW

The phrase "forensic" comes from the Latin word "forenses". A forum was a public discussion board for judicial and political debate in historical Rome. So forensic science has its roots in the legal system and is defined as such. In Forensic Science, evidence is collected, preserved, and analyzed to prosecute an offender in court. Thus, forensic science is undeniably played a vital role in the criminal justice system.

Forensic evidence in criminal prosecutions is recognized as being of significant relevance by the judicial system. Because scientific procedures and techniques are employed, there is minimal room for bias or unfairness to manifest itself. As a result, DNA profiling and other forensic proof is typical in courts all around the world. The Chinese used finger and palm print identity in forensics hundreds of years ago (650 A.D.).

All across the world, forensic evidence is utilized to convict and exonerate persons. Forensic science labs have sprouted up all over the world in recent decades. In truth, forensic services have been improved by special legislation in the US, Canada, and Australia. This would boost the likelihood of catching criminals and thus the likelihood of conviction. These acts emphasize efficient and quality crime scene handling.

IN CRIMINAL INVESTIGATION, A LEGAL PROVISION SUPPORTING FORENSIC ANALYSIS

Using evidence collected on the scene and scientific equipment, forensic science provides the investigating officer with crucial information. They assist the court in determining how the crime was perpetrated. What exactly is the crime? Who are the potential suspects? They also attempt to repeat the crime and determine why it was committed by answering all questions and contacting the perpetrator.

Indian regulation governs how forensic technology can be used in criminal investigations and trials.

- a) Do such procedures have constitutional validity?
- b) To what extent can forensic evidence be used in criminal cases?
- c) What is the forensic information acquired from the experts' evidential value?

No one accused of a crime can be compelled to testify towards oneself, in accordance to Article 20(three) of the Indian Constitution. The presumption of innocent until established guilty is

primarily based on Article 20(3). It also protects the accused from torture even as they're in police custody. It is presumed harmless till validated responsible absolutely. Everyone charged with a crime has a right to be assumed innocent till established guilty in line with law in a public trial, pronounces Article 11 of the Universal Declaration.

Self-incrimination and compelled testimony are prohibited under Article 20 (3) of the Indian Constitution. Those accused of crimes are protected by Article 20 (3) from being forced to testify against them. Prior evidence as well as evidence presented in court is protected. Only when self-incrimination is forced, not when voluntary declarations, disclosures, or productions are made, is Article 20 (3) protected.

Discussion rages over whether or not forensic proof violates Indian Constitution's Article 20(three). In *Kathi Kalu Oghad & Others*, it was found that the accused's thumb impact, specimen signature, blood, hair, semen, and other body fluids do now not represent "turning into a witness." Thus, the accused has no felony basis to item to DNA testing for investigation or trial.

P300 (brain fingerprinting), lie detector tests, and truth serum or narco-analysis were upheld by the Bombay High Court in *Ramchandra Reddy and Ors. v. State of Maharashtra*. To conduct scientific testing at the suspects inside the phoney stamp paper rip-off, the SIT has been given the pass-ahead. *Abdul Karim Telgi* is a main suspect in the case. According to the judgement, truth serum can likewise be used in this manner. Narco-analysis of an accused does not constitute forced testimony, according to the Madras High Court in *Dinesh Dalmia v State*. Even if some scientific procedures may be used in criminal investigations involuntarily, the Supreme Court has reviewed their legitimacy in *Selvi and Ors. v. State of Karnataka & Anr.*

The Supreme Court found in the above instance that inconclusive brain mapping and polygraph testing in criminal investigations were unconstitutional. When the Code of Criminal Procedure was modified in 2005, it was made possible to obtain medical information from suspects. After being detained, a suspect may also be subjected to a clinical exam if authorities have "affordable grounds for thinking" that the examination may additionally screen proof of crook interest. Samples from sexual offenders are examined using contemporary and scientific techniques such as DNA profiling, swab samples, and hair and fingernail clippings.

The 2005 amendment, on the other hand, only applies to rape situations. Similarly, Section 164-A of the 1973 Code of Criminal Procedure mandates that a rape victim undergo a 24-hour medical evaluation, which includes DNA analysis. It is permitted by Section 2(h) of Indian Medical Council Act, 1956, for any medical practitioner to take a DNA sample. I'm

curious to know if every doctor has the ability to collect and keep DNA proof. Common knowledge is that even the most minor inaccuracy can lead to sample contamination. A polluted sample has little value.

A forensic report is considered "professional opinion" under the Indian Evidence Act of 1872. An expert is someone who has learned and honed their skills through practice and observation. He has dedicated time and effort to a certain field of knowledge, making him particularly suited to share his opinions.

The expert's primary responsibility is to give all of the facts to the court, together with his rationale, in order for the court, which is not an expert, to form its own opinion based on the evidence. The reasons presented for the conclusion, as well as the methods and resources utilized to get it, determine an expert witness' credibility. The court, on the other hand, may disagree with the expert's conclusions and base its decision on other evidence. The National Draft Policy on Criminal Justice Reforms suggests converting the Indian Evidence Act to allow clinical proof to be admitted as "great evidence" instead of "opinion evidence" and establishing its probative price

IN THE INDIAN JUDICIARY SYSTEM, RESTRICTIVE APPLICATION FOR FORENSIC EVIDENCE

In India, forensic evidence is still restricted, despite the fact that it is increasingly employed in courts. Previously, the court has relied heavily on non-forensic, non-scientific evidence. According to a recent Supreme Court and Delhi High Court report, only 60-65 cases are solved using forensic evidence. Only 5% of murders and 3% of rapes have employed DNA evidence. The lack of scientific evidence in an Indian criminal investigation is demonstrated by this data alone. Integrating forensic science into criminal investigations and the legal system has been a monumental task. Conviction rates have been continuously dropping due to a lack of evidence. In this case, forensic evidence can help to partially reverse the situation.

The motives for the Court's resistance to utilize forensic proof in criminal cases are complex. Collection, maintenance, or even non-series completed incorrectly. The evidence obtained from the sites was not properly stored in many cases, resulting in a skewed report, according to the court. The DNA samples are contaminated and rendered unusable. The evidence has been regularly forwarded to the lab. Delay in examining biological and serological data leads to degradation and the release of a large amount of alcohol. Because the court cannot rely on the outcome, determining the body's drunkenness may be difficult.

The goal of forensic analysis was to discover the cause of death and maybe the crime scene. Thus, it is vital to properly arrange and handle evidence to ensure its validity in court. The sole step required is

efficient integration of forensic evidence into the investigation and analysis process.

ALTERNATIVE SUBSIDIARIES EXPERIENCING OBSTRUCTION

A technological domain such as forensic evidence is currently under utilized as a result of the incompetence and ignorance of the investigating officer in charge. So far, non-scientific approaches have been utilized to gather information. In addition, because the investigating officer is the first respondent to the crime, his lack of scientific expertise jeopardizes the impartiality of the criminal justice system. There are many people who are concerned about the independence of forensic laboratories. Both the home ministry and the police department in India are responsible for forensic science laboratories. They have been subservient and have lost their independence. Forensic laboratories must be completely separate from all other departments in order to produce an unbiased outcome.

Lack of equipment, money, and cooperation between cops and forensic professionals are serious difficulties. Forensic scientific advice, professionalism, research, and development should be prioritized in the framework, according to the Committee. The Malimath group advised equipping forensic labs with the necessary equipment. Also, DNA profiling and sample processing requirements must be set. Lessons from the Verma Commission

CASE LAWS AND RELEVANT LEGAL PROVISIONS

That's what occurred in State of NCT Delhi v Sujeet Kumar. The court docket concurred with the investigation conclusions based totally on DNA reviews and other evidences and dominated the accused guilty, overturning the Trial Court's acquittal judgement.

There turned into only one unburned palm with fingers within the Vishal Yadav vs. State of UP murder case. The accused was convicted after DNA tests identified the deceased's body. Accumulating clinical facts from suspects Interrogation of the accused is prison if there are "reasonable grounds for believing" it will uncover proof of the crime. It was utilized in State of NCT Delhi v Sujeet Kumar to link the defendant to the horrible conduct of child sexual abuse. A higher court reversed a lower court's judgement to acquit based on DNA evidence and other evidence.

Section forty five of the Indian Evidence Act, 1872 offers with expert opinion in handwriting or finger expression cases. According to Section 46, a fact can be relevant in court if substantiated by expert witness. Section 293 of the Criminal Procedure Code lists government-approved scientific experts who can help draft a report to better a trial or inquiry. Sections

53 and 54 grant the arrested person the right to be evaluated by a medical professional.

Section 27 of the Prevention of Terrorism Act stipulates that a police officer may seek samples of handwriting, fingerprints, footprints, photographs, blood, saliva, sperm, hair, and voice of accused from the CJM. Although forensic science techniques are not explicitly regulated, the Supreme Court has repeatedly interpreted and clarified its views on the matter in several rulings.

FORENSIC LANDSCAPE INCOGNITO FORENSIC FOUNDATION

India's first forensic science laboratory opened in 1878. The number of forensic and crime laboratories has grown steadily. So do the number of forensic disciplines.

The millions of pending cases in India create a huge demand for forensic labs and forensic practitioners. There is increasing demand on law enforcement to secure evidence around 5000 forensic professionals in India. The problem is that government forensic labs frequently take months to report.

IFF Lab has offices in both Chennai and Bangalore. It is a leader in the forensic sector. They bring competence in criminal investigations, cyber and digital forensics to the country's forensic arena. Law enforcement, private detectives, individuals, corporations, and the government use their cutting-edge digital forensics lab. To manage family issues without using the police, IFF Lab assists. IFF Lab helps companies and individuals avoid a PR disaster. Scams like document falsification and identity theft are rampant.

CONCLUSION

The importance of forensic science and evidence in the legal system is well known. There has been a lot of improvement in forensic science as well, thanks to advances in science and technology. On the other hand advancement in science and technology has also helped criminals to evade arrest. This makes the integration of forensic science into our legal framework all the more necessary. There has also been increased reliance on scientific methods in India and other places. In India, there has been a lot of attention paid to how technology can be used in the field of investigation. Several Commissions have said that if the courts use the scientific method when making their decisions, it can be fair, which is one of the hallmarks of democracy. Courts have struggled to incorporate forensic science into their systems, primarily because of problems with contaminated evidence and faked tests, which they do not want to repeat. They prefer to use old, non-scientific methods for their goal. Forensic science and new technology have often been added into laws, but this hasn't helped much. There are a lot of forensic scientists and

experts who aren't very good at what they do. There aren't many people who work in this field of law and science, so there has always been a problem with not having enough jobs. It is important for law and medical schools to teach forensic science as a class and to help students move forward in the field. In order to make people aware of how important forensics is in the criminal justice system, the government needs to do more. Police, investigators, detectives, and scientists must be taught about how science and technology have changed and how important evidence like this can be in a case. There's a good possibility that forensic evidence is more trustworthy than other types of auricular evidence. This field is beneficial to the criminal justice system, but we must also address the system's flaws. We must ensure that everyone in the court system fully utilizes the capabilities of forensic science.

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