



## **Constitutionality of Forensic Evidences/ Scientific Evidences**

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### **ABSTRACT**

In order to solve a crime, forensic evidence is crucial. These types of proof include bloodtests, DNA tests, bite marks, handwriting, and fingerprints. Most forensic science cases involve crimes like murder, robbery, assault, rape, kidnapping, etc. It is helpful to know how someone died, whether it was via poison, assault, or an accident. The main reason why the veracity of forensic evidence is under scrutiny is due to laboratory errors; if the evidence is gathered carelessly, the case will turn completely on its head.

In this industry, dishonest medical examiners are another issue. The forensic evidence should be treated with respect. For these appropriate labs to be provided by the government, some evidence must not be exposed to sunlight or have high moisture content. As a result, in many circumstances, forensic evidence in court cannot be considered conclusive. The medical industry is making every effort to become more effective. Citizens' ID cards in many areas also include fingerprints. In India, we have Aadhaar cards that contain all of our information, including our fingerprints. We are also giving our finger print for the passport. This essay's primary focus is on the forensic evidence's legal accountability in courts and the reasons why it isn't regarded as definitive proof.

Also, make an effort to tie instances to the early stages of forensic evidence. Keywords: forensic evidence, Laboratories, Finger print, Murder

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### **INTRODUCTION:**

The Ministry of Home Affairs, Government of India, has recently pushed for the mandatory use of forensic methods in all cases in which the sentence is greater than six years. (1) The criminal justice system has to use forensic procedures in order to boost the conviction rate.

The Delhi Police has established standards for required forensic investigations in Standard Order No. Crime/31/2022. (2) The mobile forensic van must be called to the crime site by the investigating officer (IO) or station house officer (SHO) in order to gather and preserve the pertinent evidence for subsequent testing and analysis. There are two key reasons why this is a good move in the right direction. (3)

First off, the IO or SHO who arrive at a crime scene first do not have the necessary scientific tools to gather and preserve the evidence already present. Second, bringing the mobile forensic van right to the crime site will aid in both the correct gathering and preservation of important evidence from the scene and the preservation of evidence that is easily contaminated, such as serological samples. (3) The Ministry's action is commendable, and police departments across all States and the nation must imitate it. The authors suggest that forensic procedures have the potential to improve the criminal justice system in light of the government's notification. It defines the term – forensic || and offers suggestions for ways to incorporate it into the criminal justice system. (3)

Defining what “forensic” means The Latin word – forensis, || which means – for relating to court of law, || is where the English word – forensic || originates. Hence, to evaluate evidence gathered from crime scenes that might be used as evidence in court, one uses forensic techniques. When it was first introduced, it was called criminalistics, which stood for – the application of science to criminal and civil laws. || In order to prove an accused person's guilt, forensic procedures are employed by investigators all around the world. (4) The physical evidence gathered at a crime scene significantly influences the identification and pursuit of culprits.

The physical evidence gathered at a crime scene has a big influence on who is arrested and gets prosecuted. Forensic Labs (Centre and State) receive this evidence for inspection. The most often used forensic methods include DNA testing, fingerprinting, and ballistics, toxicology, handwriting analysis, and the examination of both natural and man-made objects. These methods aid the examiner in drawing conclusions about the source and type of the evidence. The reports provided by the forensic experts are used by the investigators and prosecutors to determine the characteristics of the perpetrator and victims, their relationship, the type of the crime, how it was carried out, the instruments used, and the identification of the criminals. (5)

### *Various techniques in forensic analysis*

The generalist nature of forensic scientists' work means that they are skilled in handling a wide range of evidence kinds. But, many also have a speciality in using particular methods and equipment. Various evidence kinds call for various expertise and tools. The most typical types of evidence examined during inquiries include: evidence from ballistics, biology, and traces. Every time an object or person comes into contact with another thing or person, there is trace evidence left behind since each object leaves some sort of indication that it was there. Trace evidence includes things like tyre marks and fingerprints. Anywhere there is body fluid, human or animal remains, or biological evidence, such as DNA testing, will be detected. The study of weapons, specifically the trajectory a bullet takes while in flight, is known as ballistics. (5)

- **Biological Evidence:**

Forensic experts examine biological evidence using techniques both on the scene and in the lab. A forensic scientist could search the crime site for any human remains, blood, or other body fluids and take samples of whatever he finds. The scientist can employ the substance Luminol to reveal latent remnants of blood because not all biological fluids are visible to the naked eye (especially those that have been cleaned up later). An expert in blood spatter analysis can evaluate the patterns and sizes of the bloody regions where there is a lot of blood to learn details about the blood's trajectory. This information can be utilised to determine the sort of weapon that was used or the whereabouts of the attacker and victim at the time of the attack. (6)

- **DNA Evidence:**

DNA evidence uses the distinctive genetic markers that distinguish people to establish whether a person was there at a scene or to establish the ownership of a piece of property. An individual's DNA must be taken from a piece of property that they have had contact with and have left bodily fluids like semen, blood, or saliva on in order to be uniquely identified. A profile that is specific to that person and can be compared to a sample obtained from any person created by the scientist's tests that discover genetic markers. In order to undertake toxicological testing and determine the presence of alcohol, drugs, poisons, or chemicals, scientists may also try to obtain enough blood from the evidence (7)

- **Trace Evidence:**

Trace evidence is discovered in areas where two things have come into contact. A trace of each object that is touched, whether by a person or another object, is exchanged. The interpretation of fingerprints, tyre and footprint analysis, and fibre analysis is all based on this hypothesis. By lightly dusting the area with a powder that adheres to the oils in the fingerprint, technicians can remove fingerprints off surfaces. She then takes the print from the surface to the lab for analysis using fingerprint lifting tape. A forensic scientist can fill in the depression left by a footprint, tyre track or other pattern in an outdoor location with plaster, which can then be scraped away once it has dried. The casting is brought to a laboratory, where it is either kept until needed or matched to a known sample, like a suspect's shoe. (8)

- **Ballistics:**

A few forensic scientists focus on conducting ballistics tests. It is a branch of science known as ballistics to study the trajectory that a bullet takes to reach its target. Examining the bullet itself can reveal a great deal of information to trained ballistics specialists regarding the kind of weapon that was used, the bullet's trajectory, and other things. When a bullet is shot, a gun will leave a distinctive pattern of wear and grooves on it. An investigator may frequently determine the kind of gun that was used, the location from where it was fired, or even match the bullet with a particular weapon by looking at the bullets and test-firing firearms. (9)

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### **USING FORENSIC METHODS TO IMPROVE THE CRIMINAL JUSTICE SYSTEM:**

Such techniques have shown to be of enormous value in the identification and classification of compounds found at crime scenes as a result of recent developments in the field of forensic sciences. (10) These compounds have been precisely separated from other readily available substances that are unrelated to criminal investigations. The kind of a stain at the crime scene, for instance, or if cocaine or salt is contained in the white powder at the scene. The results of a forensic examination can be used to determine whether the bite marks on the victim's body are those of the perpetrator or come from another person or animal, whether the .38mm bullet fired from the perpetrator's gun was his or hers, and whether the hair fibre or serum taken from the victim's body was his or hers. An examiner might draw the possibility that the relevant evidence came from a specific source or individual thanks to this classification. (11)

The common origin of a piece of evidence can also be determined with the aid of forensic analysis. In order to prove that an item of evidence is identical in every way with respect to the common source or origin, it is compared to a reference standard of known source. (12) This is typically utilised in DNA matching or fingerprint matching, where a sample of DNA or a fingerprint is taken from a crime scene and compared with the information that is already available to identify and link specific individuals to the crime or the crime's tools (guns, knives or other). (13) Reconstruction and confirmation of crime scenes is another crucial use of forensic investigation. Through such inspection, it can be demonstrated that the substance discovered at the crime scene was not what the investigator had assumed it to be, i.e., the white powder was not cocaine but salt, and the scarlet stain was new paint rather than blood. To separate a person or something from the current crime, such exclusions are required. Hence, forensic analysis aids in proving a suspect's innocence and averting erroneous convictions.

## CASE STUDIES THAT USE FORENSIC ANALYSIS AS EVIDENCE

The first person to be found guilty of the crime using fingerprint evidence is Francisca Rojas.

(14) Formerly, the thumbprint was not taken into account. The incident took place in Argentina in 1892. According to the case's facts, Lady Francisca Rojas killed her two children. (14) She flatly refuted the allegations during the initial phase of the investigation and claimed that her neighbour is the target of his suspicions. No leads existed for this case. A blood-stained fingerprint was discovered in the door by the investigator who visited the crime scene. (14) The neighbour provided an alibi by claiming to have been with friends at the time of the murder. Also, he overheard Francisca Rojas' boyfriend mention that he would marry her if it weren't for those two spoiled brats in their chat.

The man who was found guilty of murdering his master was Kangali Charan. (15) The crime took place in India in 1898, and it was the country's first case to use forensic science as proof.

(15) Sir Edward Richard Henry carried out an investigation. Near the tea garden, the deceased was found with his neck slashed. There was a dispatch box nearby his body, and inside was a calendar with light blue paper that had two faint brown mudges on it. The right arm of one person left this impression. (15) As there were numerous suspects in this case, authorities took all of the suspects' finger prints and discovered that the murderer was the deceased's former servant. He was found guilty of both theft and murder since he also committed stealing. The main purpose of the Belper Committee is to think about the value of fingerprints in identifying the suspects and resolving the case. One of the instances is the Kangali Charan case. One of the committee members, Edward Henry, uses the suspect's finger print to help solve cases. (15)

In the States, John Herbert Dillinger was a joker. He performs crimes like bank robberies and hurting others. He led a sizable gang of criminals involved in a variety of crimes. He escaped from jail and was accused of killing a police officer, although he was never found guilty of the crime. Dillinger gained media attention as a result of the publication of the book — THE DILLINGER DAYS, || which was about the comedian. He was on the police's wanted list, frequently injured by them, and eventually died in a confrontation. He used acid in his finger to remove the fingerprints, it was later discovered. (16)

The Frye standard test is used by the court to determine whether scientific evidence is admissible during a trial. The broad acceptance test is an alternative name for it. The validity of the results of the polygraph test as scientific evidence has been hotly debated in the Frye v. United States (17) case. However, the court ruled that the test is not totally dependable and is not accepted as such by the scientific community. As a result, the test might be admissible in court and accepted as scientific evidence. According to the Frye standard of evidence, the majority of subject-matter specialists must deem the scientific law presented in court to be reliable. It is used to support expert testimony as well as physical evidence. If the testimony was not compelling during the cross-examination, then the Frye test is applicable.

The forensic evidence is crucial in cases of sexual assault or rape. Police in Ontario, Canada gathered data from 187 female rape and sexual assault victims to see whether medical and legal evidence was helpful in solving the case. For rape, samples of blood, sperm, semen, or saliva are gathered, and charges are then brought against him.

In Canada, centres for sexual assault care and treatment work to improve the lives of victims. It offers complete medical care, long-term counselling, judicial support, and the gathering of evidence for criminal prosecution.

There are similar institutions operating effectively even in India. There is the residence for women and children under protection. Shelter will be provided for POCSO (Protection of Children from Sexual Abuse) Act victims and women over the age of 18.

As previously noted, a detailed analysis of the victims shows that the majority of them are fewer than 21 years old, unemployed, and heavy drinkers, which is ironic. The forensic data reveals that some of the victims suffered injuries as a result of being violently, moderately, or mildly abused. Moreover, seminal or saliva stains on the skin, in pubic hair, etc. are included in the biological sample collection. They record each and every significant factor, including non-motile sperm, HIV infection status, and more. The crucial point is that we can determine, with the use of forensic evidence, if the victim attempted to fend off the attack, whether it occurred while the victim was unconscious or drunk, and all of these circumstances. (18)

A landmark case regarding forensic evidence is Selvi v. State of Karnataka. (19) Nobody should coerce someone to submit to a lie detector test, polytrophic test, or DNA test.

— No person accused of any offence shall be required to be a witness against himself, || states Art. 20(3) of Indian Constitution in reference to the doctrine against self-incrimination. Therefore everytime the lie detector test is conducted, the accused's cooperation is required. The Judicial Magistrate should also record it. The forensic evidence was the main piece of evidence in the murder and rape of Nirbhaya. The four individuals' bite marks and finger prints served as proof. The court's panel, which included Justices R Banumathi and Ashok Bhusan as well, stated in this case that — DNA technology not only provided guidance to the investigation, but also supplied the court with accrued information about the — tending features || of identifying criminals, and such evidence was increasingly relied upon by the courts. || There are several reasons why forensic evidence's responsibility is not taken into account. One of the primary reasons is that if any inaccuracy or mistake is made by a forensic scientist, it will completely alter the situation. Fingerprints from earlier crimes were recognised at the site because they were clear and frequently covered with bloodstains. Yet as technology has improved, we can now identify people using latent fingerprints. Basically, when a fingerprint cannot be seen for some reason, special techniques are used, such as finely dusting it or lifting the pattern with clear tape. (20) The examiners typically look for comparisons; for instance, if they discover a bite mark on the body, they will analyse it to determine how sharp and how deep the bite was with a sample of normal teeth. There are no standards by which to evaluate it. Because finger prints are the most advanced in this field, they are radically different in this scenario.

Even the scientific approach utilised in latent fingerprints is called ACE-V (Analysis, Comparison, Evaluation, and Verification). It essentially involves gathering pertinent information from the two distinct fingerprints, such as the pattern of ridges or direction of loops in the finger, to compare a latent fingerprint with a sample. (21) The development of forensic-based films and tales is quick and very engaging. The truth, however, is completely different. It takes a long time and there is a good probability that the evidence will be lost. There are numerous experts and seasoned professionals in the forensic sciences sector, but the level of their work varies, and this has a significant impact on

1. Inadequate laboratories
2. Lack of required certification for practitioners
3. Lack of innovative research and technology
4. Ineffective supervision
5. The practitioners' lack of appropriate training

Incriminating practices in criminal laboratories, where practitioners are not paid, the submission of fraudulent evidence, and a lack of quality control of the evidence call into doubt the reliability of forensic evidence. The forensic evidence presented in court is not admissible in the eyes of the law if there is a reasonable scientific explanation for it. (22)

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### **USING FORENSIC EVIDENCES WISELY WILL ENABLE TO MAKE FAIR AND JUST DECISION THAT END CASES:**

The Justice Math Committee on Reforms of Criminal Justice System has noted the low degree of forensic science use in criminal investigations in the nation in 2003. There are numerous reasons why it hasn't taken off. According to N V Krishna Kumar, it is wise to employ forensic evidence to help judge cases fairly and definitively. (23) The latest Sushant Singh Rajput case has once more highlighted the importance of forensic science in investigations. There were forensic special interest prime time debate panels on every television network worth its salt. In an nutshell, on June 14, 2020, Bombay resident and actor Sushant

Singh Rajput was discovered dead, hanging from a ceiling fan at this Bandra house. According to the official post-mortem report, he died from hanging-related asphyxia (23). The investigation was then turned over to the Central Bureau of Investigation for a variety of reasons (CBI). According to an article in India Today, a scientist from the Central Forensic Science Laboratory (CFSL) who was working on the CBI's investigation into Rajput's death disclosed that their team had not yet discovered any solid proof that the actor had been killed. This example has only been brought up to emphasise how crucial forensic science is to current investigations. (23)

Francisca Rojas is regarded as the first criminal ever to have been convicted using fingerprint evidence in history. (24) Ponciano Carballo Rojas, and his sister Teresa, 4, were found brutally killed at their home in Necochea, Buenos Aires Province, on June 29, 1892, while their mother Francisca Rojas, 27, was 27 years old. Francisca simulated an attack by slitting her own throat in an effort to place the blame on her next-door neighbour Pedro Ramón Velázquez. La Plata, the provincial capital, didn't learn of the murder until July 8. Inspector Alvarez, a police officer from the Central Police, travelled to Necochea to help the local police with their inquiries. He discovered that the police had no leads when he got there. Rojas vehemently denied any involvement in the children's deaths. Velázquez vehemently denied killing the kids as well. (24) Velázquez had been out with a number of acquaintances at the time of the murders, as Alvarez swiftly learned. Investigating further, Alvarez learned that Rojas' other lover had been overheard promising to marry her—save for those two brats.

—Even though the crime scene was a few days old, Alvarez studied it. At that point, he noticed a brown stain on a bedroom door. He carefully examined it and saw that it was a bloody fingerprint. Alvarez removed the portion of the door bearing the impression, recalling the instruction he had received from Juan Vucetich, and went back to La Plata with the proof. Then Alvarez asked to have Rojas' fingerprints taken. Once finished, he verified the identity by comparing his print to the impression on the door. When Rojas was presented with this proof, she sobbed and admitted to the killings. She was found guilty as a result. In the past, police relied on anthropometry—the scientific study of the dimensions and proportions of the human body—to provide conclusive proof. (24) Yet, this case provided the evidence to demonstrate that fingerprints are preferable to anthropometry for identifying reasons. Argentina was the first nation in the world to do away with anthropometry and only classify criminal records based on fingerprints after the Rojas killings. Today, criminal investigations often use fingerprints.

Technology now plays a far larger part in crime scene investigation in order to bring offenders to justice. As many Hollywood and Bollywood movies and web series would have us think, criminals are not always brought to justice with the click of a button. The police investigation, court processes, and ultimately judgements and convictions are all parts of a protracted process. Legitimacy has traditionally been seen as the defining characteristic of the legal system in a democracy like ours. The judicial branch is thought to be supported by judges. Without a doubt, technology has become increasingly integrated into the process of identifying criminals. In this situation, forensic science is essential. Science from many different fields, including medicine, biology, chemistry, and pharmacy, is used in forensic science. An application of physics was used, for instance, to blueprint the blood that was found at the scene. The dead body is easier to identify thanks to biology, but the cause of death or the presence of particular medications in the body can be discovered thanks to chemistry. The tangible evidence discovered at the crime site is known as forensic evidence. They are regarded as supporting evidence, with the documents serving as the main source. In a court of law, the primary evidence is combined with supporting evidence from other sources, which aids in the court's comprehension of the situation and decision-making. Consider the fall of a structure as an illustration. The building collapse in this instance will

be investigated by forensic civil engineering experts, and the results will be presented to the court. The judge will draw a connection between the pieces of evidence and come to a decision. Forensic evidence has long been the subject of heated debates. Others contend that forensic evidence used in a court of law invalidates a fundamental legal principle. The Indian Constitution's Article 20(3) states that no one who is charged with a crime can be forced to testify against them self. During a police inquiry, Art. 20(3) were written to protect the accused from potential mental abuse and torture. No one is required, in accordance with this right, to provide information that could be used against them in court or to respond to any questions. Several people believe that using DNA testing and fingerprinting as forms of verification violates Art. 20. (3). They contend that requiring fingerprints from the accused is equivalent to asking them to provide evidence against themselves. However, the Supreme Court determined that requiring someone to provide any type of forensic evidence, including as fingerprints, blood, hair, or semen, does not violate the requirement of Art. 20 in the case of the State of Bombay v. Kathi Kalu Oghad and Others (25). The Indian Evidence Act's Section 73 mentions this and states that anyone might be asked to provide their fingerprints or DNA.

### *Use of Forensic Evidence*

Although forensic evidence is now being used more frequently in courts all around the world, the Indian judiciary only uses it in limited circumstances. For a ruling, courts have typically primarily relied on non-forensic evidence. According to a recent report by the Supreme Court of India and the High Court of Delhi, forensic evidence is used to resolve extremely few cases. Only roughly 5% of murder cases and 3% of rape cases have employed Genetic evidence. The importance of forensic and medical evidence in assisting legal tribunals in coming to rational findings is well acknowledged. Expert medical practitioners should therefore be encouraged to engage in medico-legal activity. The environment in courts also needs to be friendly to the medical witnesses. This assumes the highest importance when contemplating the case's outcome; if qualified specialists fail to appear in court, less qualified ones would do so, which would compromise the integrity of the legal system. To this aim, forensic science must be taught at law and medical schools, and instructors must encourage students to pursue further studies in the discipline.

Need to raise awareness the government needs to do more to raise people's understanding of the value of forensics in the criminal justice system. The development of science and technology, as well as the significance of such evidence, must be taught to police, investigative officers, detectives, and scientists. Without a doubt, forensic evidence is more reliable than any other type of auricular evidence. We must close the gaps since this field benefits the criminal justice system. We must make sure that everyone participating in the legal system makes the most of the benefits of forensic science.

India's Tandoor Murder Case, (26) which was resolved with the help of forensics in 1995, was a criminal case. DNA testing in this case established beyond a shadow of a doubt that the victim, Naina Sahni, the biological child of Harbhajan Singh and Jaswant Kaur, was the one whose body was found burned.

The study also looked at several levels of the reasons why forensic evidence was dropped. At the level of the investigating agency, it was the failure to gather critical evidence, the improper sealing of samples, the late submission of the evidence to the Forensic Science Laboratory, and the inability to properly identify the case or punchnama when sending the samples.

Ineffective application The Justice Mali math Committee on Reforms of Criminal Justice System has noted the low degree of forensic science use in criminal investigations in the nation in 2003. The combined Forensic Science Laboratory and Fingerprint Bureau received referrals for only 5–6% of the registered cases. The study, among other things, calls for enhanced forensic expert training and police officer training. In order to decide cases fairly and definitively, forensic evidence is a fantastic instrument. It will be wise to utilise all of its potential. (27)

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## **CONCLUSION**

Forensic science is most relevant for providing evidence when it comes to ensuring that justice is done fairly. To ensure that the guilty party is not the one who receives punishment, this is done. The identification of the true offender, who is then punished by the court, has always been made easier by forensic evidence in many instances. As comparison to other types of evidence presented in court, forensic evidence is more valuable. The evidence can occasionally contain errors, however this is quite uncommon. More specialists should be honoured for consistently presenting information and pertinent evidence about the issue, allowing for the case to be resolved on that basis. Making our forensic science more advanced will promote national development. This could establish rigid guidelines for punishing the accused.

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