



Forensic Science and Crime- An Analytical Study

JATIN KUKREJA

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ABSTRACT: The aim of this paper is to study the interpretation of the evidential strength of forensic conclusion by criminal justice professionals. Forensic reports use various types of conclusions, such as a categorical (CAT) conclusion or a likelihood ratio (LR). In order to correctly assess the evidence, users of forensic reports need to understand the conclusion and its evidential strength.

Forensic professionals are primarily concerned with gathering, examining and presenting evidence from the crime scene to the court. Indian law sees the forensic scientists as professionals and in the implementation of justice it gives due weighting. Whilst there is no clear forensic science law in India, clauses in some criminal laws play an important role in supplying forensic evidence. The Indian Evidence Act 1872 specifies that the opinions of specially trained persons in the field of science or the identification of handwriting or fingerprinting are the relevant facts when the court has to reach a conclusion on a point of information or the recognition of fingerprints. These individuals are referred to as experts. In order to obtain a sample of handwriting, finger prints, pictures of footprints, photos, blood, saliva, semen, hair, the voice of a convicted person, a rational offender who is participating in an offence, it is provided that if an investigating officer requests in writing to the Court to do so, it is legally valid for the court to issue directions for sample collection to conduct forensic examination under the particular Act.

KEY POINTS :- Forensic Science, crime, evidence, DNA, Fingerprints, technology.

I. INTRODUCTION

Forensic is a term which can be understood in relation with the science. It is used to investigate the crime. It is a method of solving crime through technology or scientific methods. It helps the scientist to examine the evidence as early as possible which helps the police officers in solving the crime. Through forensics physical evidence can be collected from the crime scene but it should be collected in a proper manner with the

help of gloves and other necessities keeping in mind the delicacy of those evidence because ultimately they are the source which will lead in the further case. An expert who has a knowledge in a particular field will conduct the test of these evidence in a laboratory. It is the discretion of court to accept the forensic report of an expert or not, generally it do not only rely on expert evidence unless it is supported by other evidence.

Crime is something which is illegal and against the society. Anything which is injurious to public welfare is a crime. An unlawful act by a person for which punishment will be given. An intentional commission of an act for which punishment is prescribed in a criminal law. It usually involves MENS REA (guilty mind/bad intention) for the commission of an act. There are four **important ingredients** of crime.¹

1. HUMAN BEING – Act should be done by a human being and it should be against a human being.
2. MENS REA – Guilty mind /bad intention, person should have guilty mind in the commencement of the act to be charged under IPC.
3. ACTUS REUS – There should be certain act done by a person.
4. INJURY – There should be certain damage or injury caused by the act done with bad intention.

STAGES OF CRIME

There are 4 stages of crime –

1. INTENTION
2. PREPARATION
3. ATTEMPT
4. COMMISSION

Only intention and preparation of a crime will not amount to punishment but there are some exceptions in which it will amount to punishment like waging of war against state (sec 121) and Dacoity (sec 399).

OBJECTIVE

¹ S.N.Mishra, Indian Penal Code, 07 (Central Law Publication, 107 Darbhanga Castle Prayagraj 22th ed., 2022)



This paper will focus on the technical and scientific approach. It will focus on the analytical study of forensic law with crime. The main aim of this paper is to know the co-relation between forensics and crime that how to investigate the crime scene with the help of technology, laboratory etc. It also tells that how fingerprints, DNA helps to investigate the crime. Also it tells the importance of Criminal investigation department (CID) which keep the record of criminals and also aware people regarding the process of investigation. It focuses on the case laws in which DNA is used as a evidence to solve the cases. It also laid emphasis one of the important point that provisions of article 20(3) is not applicable on forensic evidences meaning thereby that forcing any person to give any kind of forensic evidence like blood, fingerprints, hair semen doesn't violate the provisions of article 20(3) which is right against self incrimination.

FORENSIC LAW AND CRIME AN ANALYTICAL STUDY

Forensics is an essential part of the criminal justice system. The word forensic has its origin from the Latin word "forensis" which stands for a forum. It helps in providing justice and maintaining law and order. In India, not many are aware of forensics, thanks to innumerable Television Shows, Movies, that have helped in introducing Forensic Science in India especially CID which most people used to watch on television. The Importance of forensic science is primarily associated with crime and crime scene investigations.

Historical Background²: India is not a newcomer to the use of science and technology in the detection, investigation, and administration of justice. Even though forensic science did not exist in its current form when our ancestors lived, they appear to have used scientific procedures in some capacity while investigating crimes. Kautilya's Arthashastra, which was published around 2300 years ago, has a thorough reference to it. Thousands of years ago, Indians examined numerous papillary line patterns.

It is assumed that they were aware of the durability and uniqueness of fingerprints when they employed them as signatures. Even Mr. KM Kata, a regular Nature writer, said that the Chinese records

demonstrated the usage of fingerprints in a former kingdom in southern India.

The Tarija, or Indian handprints, were long recognised as being distinctive by the native people (unique). Before it was scientifically shown that fingerprint recognition was unfailing, some people in India who were uneducated at the time thought the usage of fingerprints as signatures was only used ceremonially (Flawless, Perfect).

❖ **Calcutta's State Forensic Science Laboratory**

In 1952, Calcutta became the first state in India to establish a forensic science laboratory. In the year 1953, this laboratory was completely operational. This lab also received the medico-legal section from the Chemical Examiner's Laboratory. In order to handle the different physical examinations of exhibits encountered in forensic science investigations, a small section of physics was formed in the West Bengal State Forensic Science Laboratory in 1955. The Physics unit evolved into a full-fledged Physics Section in 1957.

❖ **Indian Academy of Forensic Science**

In 1960, the Indian Academy of Forensic Sciences (IAFS) was founded. This academy established a biannual scientific publication that provided as a venue for discussion of forensic science with other international organisations. The Academy's duties included hosting yearly scientific meetings and seminars as well as providing support for forensic science lectures. In fact, the Government of India created the Neutron Activation Analysis Unit to meet the demands of the nation's forensic community at the request of this Academy.

❖ **Institute of Criminology & Forensic Science at New Delhi**

Following several discussions at the government level, it was determined that the Institute of Criminology and Forensic Science should initially only be founded for educating in-service people and undertaking forensic science research. It was believed that starting courses for postgraduate degrees would not be prudent until the State governments and the consumer groups agreed to join in the system.

But the Institute's ultimate goal was to grow into a fully functional academic organisation connected to a university. The Institute of Criminology and Forensic Science (ICFS) was founded in Delhi in 1971 with the restricted goals of providing training to the in-service personnel and doing research in criminology and forensic science with the aforementioned goal in mind.

² Historical Background available at <https://www.legalserviceindia.com> (visited on 25 - 10-22)



The Institute was also planned to include two different faculties, the Faculty of Criminology and the Faculty of Forensic Science, with a number of renowned educators and researchers with relevant backgrounds and real-world experience in each.

Applicability of Forensic Science in Relation to Law:³ Yet only awareness is not important but also its application. Due to its factors India is way beyond forensic advancement and workforce that should have been introduced or implemented a long time ago.

Although, the established forensic institution in India play vital role in offering justice to the victims. The use of science and technology to detect and carry out investigations can be traced back to Kautilya's Arthashastra period. For a long time, Indians recognised that handprints were unique and thus used as signatures by illiterate people in India; some people considered it a custom until it was proved by the experts that finding criminals through fingerprints was the perfect and easiest way.

In 1849, The Chemical Examiner's Laboratory in Madras was founded to separate, detect, and assess various enzymes in human system. Moreover, during the 19th century The Criminal Investigation Department (CID) and the Anthropometric Bureau were established to keep anthropometric records of criminals. Then, the world's first fingerprint bureau was established in Calcutta (1897). In addition to this, serology department, ballistic laboratory, and a state forensic science laboratory were also established.

Despite of this developments still there are certain loopholes in Forensic Science and Hence, In most of the cases accused are declared innocent because of the limitations regarding the permissibility of forensic science evidence in the court rooms as given in Indian Evidence Act under Section-45 and 46. In addition to this, there have been many debates that forensic evidence presented in the court of law defeats the basic provision of law as Article 20(3).

❖ **State of Bombay v. Kathi kalu Oghad, AIR 1961 SC 1808**

As the question raised that using fingerprints and DNA analysis for verification violated Art.

³ Applicability of forensic science in relation to law available at <https://blog.ipleaders.in/forensic-law-jurisprudence> (visited on 26-10-22)

20. (3) of the Indian Constitution as it was felt that accused was forced to give evidence against themselves. But Article 20(3) states that no person accused of any offence shall be compelled to be a witness against himself.⁴ Hence, it defends the accused against mental harassment while in detention. In criminal law, an accused is presumed innocent until his guilt is proven beyond a reasonable doubt.

As a result, it was held that forcing any person to give any kind forensic evidence like blood, hair semen, fingerprints doesn't violate the provisions of Article 20(3). As here the accused is compelled to be a witness not compelled to be a witness against himself.

Some of the cases solved by forensics in India over the years.

❖ **Mumbai Serial Rapist – murderer case**⁵⁶

(First case in the world where DNA testing was used)

This case Compromise of Rehan Qureshi who was a serial killer in Navi Mumbai and alleged to have raped several minor girls among which two of them died particularly two and nine years old. This case was one of the intense cases of Navi Mumbai as it took 8 long years old dedicated detective work by the Mumbai police to provide justice to the minors. The atmosphere in that area remained in a panic until Rehan Qureshi was convicted.

The Navi Mumbai Police Cracked the 8year old cases with the help of DNA evidence that linked the alleged serial rapist, Rehan Abdul Qureshi.

DNA Samples of Qureshi matched with the samples taken from the bodies of the two victims. This may be first time in Maharashtra that a pending rape and murder case was solved with the help of DNA database of criminals created by the government.

❖ **Tandoor Murder Case (1995) Delhi**⁷

This was India's first forensically solved criminal case. Sushil Sharma murdered his wife

⁴ Article 20(3) available at <https://legislative.gov.in/constitution-of-india> (visited on 28-10-22)

⁵ Mumbai serial rapist Case available at <https://forensicyard.com/forensics-evidence-in-criminal-cases> (visited on 10-22)

⁷ Tandoor Murder Case, Supra note 3.



Naina Sahni at home by shooting three times into her body. He murdered his wife because he doubted that her wife was having an affair with a classmate and fellow congressman, Matloob Karim.

After murdering his wife, Sharma drove her body to the Bagiya restaurant, where he and restaurant manager Keshav Kumar attempted to burn her in a tandoor. Police took Sharma's revolver and bloodstained clothes and took them to the Lodhi Road forensic laboratory. They also took a blood sample from Naina's parents, Harbhajan Singh and Jaswant Kaur, and sent it to Hyderabad for a DNA test.

According to the lab report, "blood samples preserved by the doctor during the postmortem and blood stains on two leads taken from the deceased Naina's body are of the 'B' blood group." The DNA report concluded, "The findings prove beyond any reasonable doubt that the burned body is that of Naina Sahni, who is the biological offspring of Mr. Harbhajan Singh and Jaswant Kaur." Mr. Sushil Sharma was ultimately found guilty based on forensic evidence.

❖ Neeraj Grover Murder Case⁸

In this case, absence of any eyewitnesses, forensic evidence played a key role in cracking the sensational Neeraj Grover murder case. The dependency on the scientific investigation can be gauged from the fact that DNA expert Srikant Lade from the Kalina Forensic Science Laboratory was summoned by court for examination by the defence and prosecution to elaborate on the procedure of each and every scientific test which was done in the case.

(DNA- Deoxyribonucleic Acid. It Contains units of biological building blocks called nucleotides. DNA is a vitally important molecule for not only humans but also most other organisms. DNA contains our hereditary material and our genes, the things that make us unique.)⁸

II. CONCLUSION:

Forensic science is in a unique position among all other scientific fields because of its important social impact. Indeed, forensic science is at the interface of natural sciences and law implications in civil and criminal cases. It has been unanimously accepted that for courts to derive

logical conclusions, medical and forensic evidence holds a significant role. Ancient procedures, however, reflected many descriptions of techniques that indicated the concepts produced currently in forensic science. Forensic science is an innovative research approach flowing in current era, used in criminal and civil investigations. It holds the proficiency to retort to critical questions and forms a requisite part of the framework of criminal justice. Labs have been established at state and national level by government to assist police, courts and other as required during investigation stage or examination. Forensic evidences are acquired from the place where crime is executed as a part of investigation by forensic experts. Each gathered proof is so special in its own that to draw the conclusion, it becomes important to evaluate it and examine it separately. Often, complicated cases demand the review and interpretation of the evidence, gathered by many experts specializing in the same area. Altogether, forensic science constitutes an area that becomes exciting and evolving with each passing day as new technological changes pops up faster and beyond one's thinking capacity just like new kinds of crime are still turning up every time. Investigating bodies like International Forensic Sciences (IFS) and Central Forensic Science Laboratory (CBI) are sort of substitution to solve the pending cases. At crime scenes, criminals almost often leave evidence or collect inadvertently. The ability to perceive evidence is continuously improving, and it is given consideration in many court cases. It is introduced by expert witnesses to juries and judges and had help them in resolving cases. Different organizations have realized the need to recognize and include more and more forensic professionals within expert testimony. This is of paramount significance in looking at the outcome of the case, because if good experts lack court participation, the gap would be filled by less objective practitioners, potentially impacting the justice system.

⁸ Neeraj Grover Murder case , Supra note 5.