



Jurisprudence Of Forensic Science Evolution Practice And Future

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ABSTRACT

Forensic Science is the mixed blend of science and law and expert opinion is corroborative in nature to establish truth. The jurisprudence of forensic evidence is essential to understand by forensic expert and other stakeholders of criminal justice system so that the scientific acumen may withstand in the court of law. Forensic Law incorporates guiding principles for law enforcement agencies and the courts to have the best use of scientific advancements in the domain of legal evidence to help the court to reach to truth while administering justice. The forensic evidences, despite being the secondary evidence, are neutral in nature and hence have great corroborative value. This article is the culmination of legal analysis of judgments delivered by the Constitutional Courts in India also we will take a look on law of right against self-incrimination. The research paper is based on the right against self-incrimination and analyzed its scope and nature. It is important to discuss such relevant concepts so that scientific evidence may assist the court in ensuring justice.

Keywords: Forensic Science, Jurisprudence, law, self-incrimination etc.

I. INTRODUCTION

DEFINITION: The term 'forensic' derives from the Latin forum, which means "public" (Oxford English Dictionary, 2005). The Senate of ancient Rome met in the Forum, a public space where the day's political and policy matters were discussed and debated; technically, "forensic" refers to public or legal concerns.

Together, the phrase "forensic science" is an accurate scientist of the profession of scientists whose work involves providing answers to courts via reports and testimony.¹

'Forensic Science' would, therefore, mean the science which is used in the courts of justice. The National Institute of Justice (NIJ, 1908) defines forensic science as "application of scientific knowledge to the legal system."²

More broadly, it is the scientific field concerned with the recognition, identification, individualization, and assessment of physical evidence via the use of natural science concepts and procedures for the goal of

¹ Max M. Houck and Jay A. Siegel, Jay A. Siegel, Fundamentals of Forensic Science 4 (Elsevier, Oxford UK, 2nd edn., 2011)

² Kelly M. Pyrek, FORENSIC SCIENCE UNDER SIEGE: The Challenges of Forensic Laboratories and the Medico-Legal Investigation System 4 (Academic Press, Amsterdam, 1st edn., 2007)



criminal justice administration. In other words, it is the use of a broad range of disciplines and technology to conduct post-mortem investigations and establish what occurred based on gathered data.³

A synonym of forensic science is also termed as "Criminalistics". The word "Criminalistics" was imported into English from a German word "kriminalistic"⁴.

It is also known as the science of individualization (Kirk 1963a). The process of individualization is traditionally called identification, as in fingerprint identification, but is more appropriately termed as individualization or source attribution⁵.

"Evidence" means and includes-

- (1) Any remarks made before the Court by witnesses in regard to the facts under investigation; these statements are referred to as oral evidence;
- (2) Every document submitted for the Court's scrutiny, including electronic records; such documents are called documentary evidence⁶

In India, the growing awareness among the police and the judiciary, regarding the role of science played in scientific evaluation of material clues, led to setting up of forensic science laboratories in the State as well as the Centre. After a considerable thought given by the forensic science forums to build comprehensive forensic science facilities under one roof, most of the new laboratories came up with comprehensive facilities by amalgamating scientific sections and chemical examiner's laboratory into forensic science laboratory. The existing position of the forensic science laboratories and other allied forensic science institutions in the country, offering scientific service in the administration of criminal justice can be studied under two heads. They are (1) Institutions under the Centre (2) Institutions at the State. Level.

II. TYPES OF FORENSIC EVIDENCE

Although the term 'Forensic Science' encompasses all fields of physical and natural sciences, the most prominent of which being chemistry, biology, and physics, there are two major divisions of forensic science. They are Identification and Individualization. In Identification the parent field is mostly chemistry, though principles are drawn from physics or biology. The goal of these specialties typically is to identify a substance and to quantitate it. As a result, the approach is also known as quantitation. For instance, what chemical is contained in a certain powder, and how much of it is there? Is a cadaver poisoned, and if so, what type and how much? These areas, which are founded on traditional science, are regarded as quite dependable and are rarely contested in court until a novel approach is offered or there is proof of carelessness or fraud. On the other hand, individualization tries to connect each piece of evidence discovered at a crime scene with its unique source, to the exclusion of all others, and it is not drawn from traditional sciences. Rather than that, the tools and concepts used in individualization include comparisons of bite marks, bullets, fingerprints, footwear, hair, and handwriting. The exception is DNA typing. It is the first science of individualization deriving from conventional science⁷. The term "forensic science" encompasses a broad range of forensic disciplines, each with its own set of technologies and practices. Some of the forensic science disciplines are Chemical examination, Fingerprints and footprints, mobile phone data, DNA test (Forensic Identification),

³ forensics, available at: <http://www.thefreedictionary.com/forensics> (Last visited on September 20, 2013)

⁴ Supra note 6 at 4

⁵ Tim Newburn, Tom Williamson, et.al. (eds.), Handbook of Criminal Investigation 303 (Willan Publishing, UK, 2007)

⁶ The Indian Evidence Act 1872, available at: <http://indiankanoon.org/doc/1031309/> (Last visited on September 20, 2013)

⁷ Jane Campbell Moriarty, Michael J. Saks "Forensic Science, Grand Goals, Tragic Flaws & Judicial Gatekeeping" 44 Judges Journal 17 (2005)



Identification by photograph, identification by voice, Ballistics, Toxicology.⁸ Except these there are also various other classification of Forensic Science. They are, Forensic Entomology, Forensic Odontology, Forensic Pathology etc. Since, in the present study only four topics are dealt with such as DNA, ballistics, fingerprints and toxicology, only those four topics are discussed at length.

III. EXISTING INDIAN LAWS

Section 45 of the Indian Evidence Act, 1872, deals with 'opinion of expert, when relevant'. But the opinion of expert is admissible by evidence only after scrutinization under Article 21 and Article 20(3) of the Constitution of India and section 161(2) of Code of Criminal Procedure, 1973. Section 293 of Code of Criminal Procedure, 1973, specifies under what circumstances certain reports of Government scientific experts may be used in any evidence. Sections 53 and 53A of Code of Criminal Procedure 1973, is also very much useful for DNA profiling of the accused. The law relating to 'fingerprints' is specifically covered by different sections of the Identification of Prisoners Act, 1920, Section 73 of the Indian Evidence Act, 1872 and section 293 of the Code of Criminal Procedure, 1973 along with the general laws applicable to other forensic techniques. The laws relating to toxicology is specifically dealt under certain sections along with the general laws. Section 284 of the Indian Penal Code, levies the punishment for 'negligent conduct with respect to poisonous substance'. Sale of Poisons Act, 1919, prohibits except under a licence, the import of any specified poison and may by rule regulate the grant of licences. Narcotic Drugs and Psychotropic Substances Act, are also a certain category of poison and dealt by the provisions of The Narcotic Drugs and Psychotropic Substances Act, 1985.

IV. APPLICATION OF FORENSIC SCIENCE IN LAW

The application of advanced science, which spans many disciplines such as photography, physics, chemistry, toxicology, and narcotics, as well as DNA profiling. Brain fingerprinting, narcotics analysis, and similar techniques are sometimes referred to in criminal law as the law of forensic science to legal disciplines. In other words, forensic evidence means the use of one or more of forensic sciences for the purpose of law or for Criminal Justice System. In any case, the use of this advance science starts primarily from the place of occurrence. The detection, collection, packaging, transportation and analysis of physical evidences and biological materials are the main functions of forensic science. It will obtain legal sanctity if it all is done according to settled norms. Now the time has come when nobody can get false conviction due to eyewitness errors, unreliable information, racial bias, false confession, misconduct, political pressure, system corruption and poor legal representation.

In forensic investigation the evidences are generally obtained from Clinical Forensic Medicine. Forensic Pathology, Forensic Thanatology, Forensic Toxicology, Forensic Anthropology, Forensic Entomology, Forensic Geology, Forensic Taphonomy, Forensic Identification of Biological Fluids and Stains, Forensic DNA Analysis, Forensic Footwear Evidence, Forensic Tire Impression and Track Mark. These are all based on circumstantial evidence.

Where direct evidence is not available or if it is available is not sufficient to prove or disprove a fact then assistance of circumstantial evidence is taken, e.g., hair, foot and tyre mark, fingerprint, bullets etc. may link the accused to the alleged crime and to the place of occurrence.

⁸ Supreme Court Digest, 2011, 2010 and 2009



V. DIFFERENT TYPES OF FORENSIC EVIDENCE IN INDIA

A. Forensic Identification by DNA Profiling Technique (DNA tests)⁹

DNA is an acronym for Deoxyribonucleic Acid. It is the fundamental genetic material found in all of the body's living cells. It is found in white blood cells but not in red blood cells. It contains the genetic information. Thus, the DNA structure determines a person's personality, conduct, and physical features. As a result, each individual is unique and distinct from the others. Monozygotic twins have identical DNA structures since they are the result of the division of a single fertilised egg. Twins that are monozygotic are typically identical.¹⁰ In 1984, Sir Alec Jeffrey discovered the method of identifying individuals from DNA and in 1985 UK police first used forensic DNA profiling.

B. Ballistics

Ballistics is the use and study of firearms. Ballistics is a science that was created to aid in the study of weapons, ammunition, and other related material. Ballistics is a technical word that relates to the examination of a bullet's passage from the firearm, through the air, and into a target. Ballistics, on the other hand, is a colloquial name for weapons identification in criminal investigations: the art of matching recovered bullets and their casings to the firearm from which they were shot. A tool mark expert seeks to match the markings left by tools such as screwdrivers and crowbars on items. Ballistics experts are more than experts in tool marks. They are typically specialists in a variety of firearms-related subjects and testify on everything from whether a particular object is a firearm legally to detailed reconstructions of crime scene evidence¹¹. Forensic Ballistic was first invented by Calvin Goddard, a pioneer in this study.

C. Fingerprints

"Fingerprints are God's own seals, given to us that we may recognize his greatest creation-MAN." The best and certain method in identification was fingerprints which were discovered during the fag end of the nineteenth century till the advent of a similar method DNA Fingerprinting. Pattern and impression evidence is one of the most common forms of evidence that can be detected and collected from a crime scene. There is a controversy regarding the inventor of fingerprint. It is accepted by many that Henry Faulds is the true inventor of Fingerprint. Although evidence were found that the use of fingerprint existed from the pre-historic times, the English first began using fingerprints in July, 1858, when Sir William Herschel, the Chief Magistrate of the Hoogly District, first used fingerprints on native contracts¹².

D. Forensic Toxicology

Forensic toxicology's major interest is not with the legal conclusion of the toxicological inquiry, but with the technologies and procedures used to acquire and interpret the data. Numerous types of samples are suitable for toxicological examination. Mathieu Orfila produced the first complete book on forensic toxicology in 1813. He was a renowned Spanish chemist and physician who is frequently referred to as the "father of toxicology." His study stressed the importance of appropriate identification and quality assurance. Additionally, it acknowledged forensic toxicology's applicability in the pharmaceutical, clinical, industrial, and environmental areas.

VI. FORENSIC SCIENCE AND CRIMINAL ADMINISTRATION OF JUSTICE SYSTEM

⁹ Adarsh M. Dhabarde, "Forensic evidence in Criminal Trial: The Need of the Hour"⁴⁻⁷ (2012) available at: <http://ssrn.com/abstract=2111995> (Last visited on February 7, 2015)

¹⁰ B.R. Sharma, *Forensic Science in Criminal Investigation & Trial* 1123 (Universal Law Publishing Co. Delhi, 4th edn., 2003)

¹¹ Ballistics, available at: http://apps.americanbar.org/abastore/products/books/abstracts/5450051chap1_abs.pdf

¹² Impression and Pattern Evidence, available at:

<http://nij.gov/topics/forensics/evidence/impression/pages/welcome.aspx>



Justice and Science is a meaningful subject. Aristotle describe Justice as the practice of perfect virtue but perfect virtue is a question of abstract principle.

Forensic specialists play a critical role. Any erroneous, unreasoned, or thoughtless view may result in grave injustice for either the prosecution or the defendant.

Forensic Evidence is commonly acknowledged scientific evidence that is acceptable to courts of law and the scientific community. Such evidence must pass the admissibility standard established by the Indian Evidence Act, 1872, as applied in Indian Courts of Law. The scientific evidence generated in this manner probabilizes the evaluation of involvement or non-participation by the accused. Forensic evidence is founded on the application of relevant scientific theory and laboratory methodology, which in turn incorporates a range of other natural sciences. It is critical to remember that the purpose of forensic science is to establish or generate forensic evidence for use in a court of law. At or before trial, the scientific evidence and forensic test findings prove a fact or truth. The objective is to assist the Court in reaching a proper decision, not to display technical advancements, scientific methodologies, or tactics.

VII. PRINCIPLES OF ADMITTING SCIENTIFIC EVIDENCE BY INDIAN COURTS

In India the principles of admissibility of evidence are relevancy. According to the Indian Evidence Act, 1872, section 45 of, deals with expert evidence. The principles of admissibility in Indian Courts are that evidence can be given only of relevant facts and facts in issue. A fact may be relevant but not admissible, like in case of documentary evidence, only under certain circumstances secondary evidence of a document can be produced. If it does not satisfy the legislative provision, although a document might be relevant but it would not be admissible. It might also happen that a document or an expert report might be admissible as it is an original one or otherwise but since it is not relevant, such evidence is not accepted by courts. Therefore, in India, the principle for accepting forensic evidence is relevancy and admissibility. Under, the broad principles of 'relevancy' comes reliability, helpfulness, fitness which are treated as separate grounds in US. Assistance, relevant expertise, impartiality and evidentiary reliability which are the principles for admission of expert evidence in UK, also comes under the requirement of 'relevancy'. In India, the law regarding expert evidence is guided by sections 45 to 51 of the Indian Evidence Act, 1872. In the case of Mahmood v. State of U.P.¹³, the Supreme Court has defined the term expert and said that it would be highly unsafe to convict a person on the sole testimony of an expert. Although conviction based on expert evidence is unsafe, yet the incorporation of section 53 and 53A of the Code of Criminal Procedure, 1973, mandates that in certain cases the expert evidence is indispensable. In the case of Selvi v.State of Karnataka¹⁴ the Supreme Court held that compulsory administration of forensic techniques like polygraphy, Narco-analysis and Brain-Mapping is unconstitutional if performed without the consent of the accused as it violates Article 20(3) and article 21 of the Constitution of India¹⁵.

A. Latest Judicial Pronouncements

Here are a few recent examples in which the court relied on forensic evidence and rendered a judgement based on this piece of evidence.

In Krishan v. State of Haryana¹⁶, The Trial Court convicted the appellant under Sections 376 and 506 of the IPC, based on the facts and circumstances of the case and, more specifically, on the FSL report.

In a recent judgment in case of State of Gujarat v. Mohan Hamir Gohil and others¹⁷, after consulting numerous authorities on DNA technology, diverse testing methodologies, and scientific breakthroughs made worldwide,

¹³ AIR 1976 SC 69

¹⁴ 2010 (7) SCC 263

¹⁵ Article 20(3) prohibits self-incrimination and Article 21 guarantees right to life and personal liberty

¹⁶ (2014) 13 SCC 574.



the Division Bench of this Court observed that throughout time, courts across the globe, including in India, have placed a high premium on DNA results. It was noted that "with time, DNA testing technology has advanced and more sophisticated, resulting in results that may frequently be utilized to determine an accused's inclusion or exclusion.

VIII. MEANING AND DEFINITION OF SELF-INCRIMINATION

The privilege against self-incrimination enables the maintenance of human privacy in the enforcement of criminal justice and also paramount to apply the principles of natural justice in criminal proceeding. When we thought about right against self-incrimination, one primary consideration is necessary, that is what we mean by right against self-incrimination?

In other words, self-incrimination means "acts or declaration by which a person explicitly or implicitly admits his connection with a crime, driving interrogation by the investigating agency or by way of statement before trial or during trial"¹⁸.

According to Black's Law Dictionary¹⁹, Self-incrimination means "the acts of indicating one's own involvement in a crime or exposing oneself to prosecute, esp. by making a statement". According to Legal Thesaurus Dictionary²⁰, Self-incrimination means "acts or declaration by which one incriminates oneself in a crime; giving criminal evidence against oneself".

According to The Law Lexicon, the Encyclopedic Law Dictionary²¹, Self-incrimination means "acts or declaration driving interrogating agency or by way of statement before a magistrate either before or during trial".

A. Protection against Self-Incrimination' as a Fundamental Right in India

The right against self-incrimination has its oldest expression in the Latin adage 'Nemotenetur seipsum accusare', which translates as 'No one is obligated to accuse himself. The right eventually emerged in common law as a result of objections against inquisitorial and plainly unfair ways of interrogating accused individuals in England throughout the Middle Ages.²² Article 20(3) of the Indian Constitution protects an accused against coerced self-incrimination – "No person accused of an offence shall be compelled to be a witness against himself". In 1978, the Constitution (Forty-fourth Amendment) Act, 1978 provided Article 20 of the Indian Constitution non-derogable status, i.e., the state has no legal basis to refuse to honour this right, even during a situation of emergency. This demonstrates the high regard with which it has been afforded in our Constitution.²³

M. P. Sharma v. Satish Chandra²⁴ was the final important judgement on the constitutional interpretation of Part III shortly after independence. Numerous instances have been referred to the Apex Court in the aftermath of M.P. Sharma. The issues raised mostly concerned the interpretation of what it means to be a witness against oneself in light of the conditions constituting coercion.

B. Things that do not carry a self-incrimination protection

¹⁷ R/CR.A/224/2012

¹⁸ Justice Malik, Commentary on Law of Fundamental Rights, p. 4284, 4th Edition, 2009, Delhi Law House

¹⁹ 8th Ed., 2004, P. 1391.

²⁰ 1st Ed, 2001 Taxman Publication (P) Ltd., P. 685.

²¹ P. Ramanatha Aiyer, 2nd. Ed., 2007, Wadhwa Publication, Nagpur, p. 1742

²² 180th Report of the Law Commission of India, Article 20(3) the Constitution of India and the Right to Silence, 3, (2002)

²³ Sections 5, 6 and 342 of the Indian Oaths Act, 1969 are based on this right.

²⁴ AIR 1954 SC 300.



- The use of one's body to incriminate one's self (includes: Appearance Evidence, where no bodily surface is penetrated and no biological materials removed)
- Invasion of one's body to obtain evidence (includes: Bodily Evidence, where the surface is penetrated, X-rayed, scrapped, poked, prodded, or pumped)
- View of private parts (includes: Strip Searches and Body Cavity Searches, which we'll talk about later)
- Voice characteristics (includes: Voiceprints and/or lineup compulsions "Your money or your life")

It is critical to emphasize that Appearance Evidence receives no (or little) protection under the Fifth Amendment. Physical evidence will trigger the balancing test, and the government's right to know must be evaluated against the individual's right to privacy. The evidence of this type of evidence is physical: footprints, fingerprints, blood samples, DNA, hair, saliva, breath, and voice, as well as the removal of a bullet, a journal, and records.

IX. CONCLUSION

A critical analysis of the various forensic evidences revealed that it is an indispensable tool in the hands of the decision-making process of criminal cases which has to be properly used. The study has also revealed the lacunae on the part of the system which involves investigation and prosecution. The study also helped to understand the minds of the court while accepting forensic evidence and while rejecting it in the decision making process. Still some efforts and improvements are required in this field to make it much more trustworthy and dependable.

Some proposals for improving the quality of forensic science results are as follows: A. Funds to be Increased B. Forensic Education should be improved through research C. Forensic Science culture should be improved D. Applying Scientific Standards to Casework E. Data Access G. Handling the Tension Between an Adversarial Culture and a Research Culture.

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