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A Clarion Call for the Use of Forensic Scientific Techniques in Criminal Investigation and Law in India

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ABSTRACT

Why do most people obey the law? Why do they usually accept judicial decisions? Social psychology research indicates that people obey the law and accept judicial decisions as long as they believe that the procedures and the laws are fair and just. The nature of crimes has undergone many changes, but for their investigation, agencies are still following age-old procedures. Even in heinous crimes, a large number of criminals are not prosecuted and many trials end in acquittal as a result of which the number of criminals as well as crimes is increasing day by day. For a just trial, where the guilty is punished according to law, an investigation without any loophole is a necessity. Since 1980s, significant social, legal, and scientific changes in the criminal justice system have occurred. The discipline of forensic science has altered the socio-gram of the law-science interface. Forensic science aims to produce knowledge and find facts as the foundation for justice, with solitary purpose of assisting the judges to evaluate the evidential task. It comprises of all prominent techniques such as DNA-Sequencer, High-Speed Ballistic Photography, Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), Magnetic Fingerprinting, Automated Fingerprint Identification (AFIS) and many more. Criminal investigations must be performed through technical succor to decide on whether a crime has been committed or not; when, how, and by whom. Keen investigation in the detection of crime is an important step in the administration of justice; hence investigations must be prompt, fair and impartial. This research paper will mainly be focusing on the analysis of forensic scientific techniques and how forensic science infers the rule of law and enhances the criminal justice system. Further, the paper emphasizes on the importance of utilization of the discipline during legal investigations in India which however has failed to achieve the desired goal, and henceforth needs reconsideration.

Keywords- criminal investigation, forensic science, rule of law.

I. INTRODUCTION

If the real world lived up to our ideals, the judicial process would provide an elaborate and

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totally fair set of procedures that ensured objective, unbiased, and consistent decisions about violations of criminal laws. At the opposite extreme, our worst nightmare of injustice would be realized if all judges were corrupt, the police always coerced confessions by mistreating accused, all lawyers were dishonest, and all jurors were ignorant, disinterested, and biased. In fact, the legal system is neither as perfect as it could ideally be nor as imperfect as inadequate and unethical participants could ideally make it. Instead, research indicates that the people involved in the legal process usually try to do what they believe to be the right thing. Administration of criminal justice primarily rests on police, prosecution, courts and prisons. These Four organs are engaged in the vital task of prevention, detention, prosecution, adjudication and penalization of offenders in society. Effective criminal justice machinery ensures a safe and peaceful society. In fact, the entire existence of an orderly society depends upon sound and effective criminal justice system². The rights of defendant are also safeguarded by forensic services by means of exonerating the innocent and corroborating a victim's evidence. Over the years, forensic science has made distinctive progress. Therefore, with the advent of technology, there has been a radical advancement of criminal justice. In *Jennison vs. Baker*,³ it was pithily stated: "Law should not be seen to sit by limply, while those who defy it go free, and those who seek its protection lose hope". This has created great opportunities for solving judicial matters by supporting incipient proceedings of scientific research.⁴ Somewhere, the efficiency and effectiveness of the criminal justice functioning has come to be entwined with the extent of use of technological tools in crime investigation. For instance, in a 2019 judgment of *P. Rajagopal and Ors. Etc. vs. The State of Tamil Nadu*⁵, the Apex Court held that the "traditional dogmatic hyper-technical approach" needed to be replaced with a "national, realistic and genuine approach for administering justice in criminal trial."

The success of the analysis of forensic evidence is based upon a system that emphasizes on well trained police investigating team, advanced investigating expertise, and the ability to investigate a crime scene properly by recognizing, collecting and preserving all relevant physical evidence through tools such as DNA Sequencer, a scientific technique which allows forensic scientists and criminal investigators to analyze old bones or teeth to determine the specific ordering of a person's DNA nuclear-bases, and generate a read or a unique DNA pattern that can help identify

² Committee on Reforms of Criminal Justice System, Government of India, Ministry of Home Affairs, Volume I, 2003.

³ 1972 (1) ALL ER 997 (1972) 2 QB 52.

⁴ A Legal Research Paper by Megha Shankar (May,2012), "A Critical Analysis of Crime Investigation System in India", p. 12, accessed from http://slidept.net/view-doc.html?utm_source=a-critical-analysis-of-crime-investigati-doc-forensic-science-fingerprint.

⁵ Criminal Appeal No. 820-821 of 2009, decided on March 29, 2019.

a person as a possible suspect or a criminal.

II. ROLE OF FORENSIC SCIENCE IN CRIMINAL INVESTIGATION

Forensic science has received a great deal of publicity over the years. Forensic scientists provide valuable information that aids in the investigation and prosecution of crime through the scientific examination and analysis of physical evidence. The word ‘forensic’ is derived from the Latin term ‘*forensis*’, which means ‘of the forum’. It is defined as the application of science in answering questions that are of legal interest. Forensic science in today’s world is an advanced scientific technique which is used in criminal and civil investigations, it is capable of answering important questions and forms an integrated part of criminal justice system.⁶ It includes all well known techniques such as fingerprint analysis, DNA analysis, ballistic, firearms or explosive culture etc. It helps to convict those guilty of crime as well as can exonerate the innocent. Let’s take an example, for crime scene investigators and forensic scientists, Video Spectral Comparator 2000, is one of the most important forensic techniques accessible. Through this machine, scientists and investigators can look at a piece of paper and scrutinize obscured or hidden writing, establish the quality of paper and its origin and “lift” indented writing. It is sometimes possible to complete these analyses even after a piece of paper has been so damaged by water or fire that it looks unintelligible to the naked eye.

Further, with another forensic technique, Magnetic Fingerprinting and Automated Fingerprint Identification System (AFIS), crime scene investigators, forensic scientists and police officers can quickly and easily compare a fingerprint at a crime scene with an extensive virtual database. In addition, the incorporation of magnetic fingerprinting, dust and no-touch wand allows investigators to get a perfect impression of fingerprints at a crime scene without contamination. Sir William Herschel was one of the first to advocate the use of fingerprinting in the identification of criminal suspects. Fingerprint evidence was first accepted in an Argentine court in the 1890s and in an English court in 1902. In present times, forensic science is an integrated part of criminal justice system.

Forensic science comprises the application of the knowledge and methodology of various disciplines of science to legal matters. Basically, it deals with scientific examination of physical clues collected from the crime scene. It explains the identity (who) of the suspect who committed the crime. The evidence and the crime scene spot clearly indicate the type (what) of the crime committed. The circumstances speak out about the time (when) of the incident. The

⁶ Isha Tyagi and Nivedita Grover, Development of Forensic Science and Criminal Prosecution-India, 2 IJSRP Vol.4 (2014).

advance forensic evidence proves the location of the offence (where/crime scene). The forensic investigation finds out the modus operandi (how) of the offender. Lastly, it establishes the motive behind the crime. The forensic investigating teams reconstruct the identity of the offender and the victim.⁷ While going through the investigation, evidence is collected at a crime scene or from a person, analyzed in a crime laboratory and then the results presented before the court. Every crime scene is different, and each case presents its own challenges and task.⁸ It links the criminal with the crime through objects left by him at the crime scene and with the victim. It has become a great helping hand to the crime investigation agencies and the criminal justice system in properly identifying the guilty and safeguarding the innocent. For example, when broken glass is involved in a crime, putting together even tiny pieces can be a key to finding important clues like the direction of bullets, the force of impact or the type of weapon used in a crime. Through its highly sensitive isotopic recognition ability, the Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) machine breaks glass samples of almost any size down to their atomic structure. Then, forensic scientists are able to match even the smallest shard of glass found on clothing to a glass sample from the crime scene. Forensic science, thus, also saves the innocent. After the emergence of DNA technology as a latest method of forensic science, it provides tremendous amount of information to the investigating officers that enable him to find the criminal purely from evidence which he has left at the scene of crime.⁹

III. SCIENTIFIC EVIDENCE

According to Webster Dictionary, evidence is that which is legally submitted to a competent court or tribunal as means of ascertaining the truth or otherwise of an alleged matter of fact under investigation.¹⁰ The Latin term ‘scientia’ gave birth to the term ‘science’ which means knowledge. New Oxford Advanced Learner’s Dictionary¹¹ has defined science as the understanding about the composition and behavior of both natural as well as physical world, relying on the data that one can prove. Most of the time, the court has to deal with circumstantial evidence and scientific evidence which often play a pivotal role.

The term science is used in Indian Evidence Act, 1872 under Section 45 as: “When the Court

⁷ N. B. Narejo, M. A. Avais, Examining the Role of Forensic Science for the Investigative-Solution of Crimes, 252 SURJ (SCIENCE SERIES) Vol. 44(2) 2012.

⁸ Forensic Sciences, National Institute of Justice, Office of Justice Programs, <http://www.nij.gov/topics/forensics/pages/welcome.aspx>, (last visited on 15.2.2016).

⁹ Jyotirmoy Adhikary, DNA Technology in Administration of Justice, (LexisNexis, Butterworths, 2007).

¹⁰ Jhala R M and Raju V B (1997), Medical Jurisprudence, p.19, 6th Edition, Eastern Book Company, Lucknow.

¹¹ A S Hornby (2005), Oxford Advanced Learner’s Dictionary, p. 1357, 7th Edition, Oxford Book Company, New Delhi.

has to form an opinion upon a point of foreign law, or of science, or art, or as to identify of handwriting [or finger impressions] are relevant facts. Such persons are called experts”.

Its application is quite wide and comprehensive. It helps in effectively dealing with criminal cases based on scientific evidence and is used as part of contemporary techniques in identifying crimes and criminals. In *Pushpadevi M. Jatin vs. M.L. Wadhwan*,¹² the Supreme Court made it clear that where the evidence offered comes within the meaning of its definition, the court can act and need not concern itself with the method by which it was obtained. Sir Lawrence Jenkins, in *Barinder Kumar Ghose vs. Emperor*,¹³ observed that relevant evidence remains relevant despite the fact that it was not obtained by following proper procedure of law.

IV. NEED FOR STRENGTHENING FORENSIC EVIDENCE

The main purpose of forensic investigation of crime is to provide expedient information about linking the suspect and victim with each other and with the scene of crime through scientific analysis of physical evidence. In criminal investigation, use of Forensic Science is needed for investigation of crimes and prosecution of criminals which are not up to mark. Even in heinous crimes, a large number of criminals cannot be prosecuted and a few trials end in acquittal as a result of which the number of criminals as well as crimes is increasing day by day.

The Supreme Court has also articulated in *D.K Basu vs. State of West Bengal*¹⁴ that enforcing agencies must act within the bounds of law and there is need for developing scientific methods of investigation and interrogation of the accused, as custodial deaths and torture are nothing but a blow to the Rule of Law. The need for application of science in criminal investigation has arisen due to the following factor:

- Social Changes
- Hiding Facilities
- Technical Knowledge
- Wide Field
- Better Evidence

Most importantly, one should keep in mind the victim’s perception. She/he is the foremost sufferer and also has a right to speedy, effective investigation and trial. One cannot overlook the victim’s interest in meting out quick justice, as we are all aware that “justice delayed is justice denied”.

¹² AIR 1987 SC 1748.

¹³ ILR (1910) 37 Cal 467.

¹⁴ AIR 1997 SC 610.

Types of Evidence: Forensic scientists are experts in working with different types of evidence. However, many also specialize in the use of certain techniques and tools. Different types of evidence require different skills and equipment:

- Biological Evidence
- DNA Evidence
- Trace Evidence
- Ballistics

Scope of Forensic Science: Forensic Science has shaped the world of justice, fueling crime investigation and the progress of modern technology. It covers:

- Modern Computer/Clay Facial Reconstruction;
- DNA Fingerprinting;
- Forensic Anthropology;
- Forensic Psychology: Psychological Profiling, Psychological Assessment, Polygraph, Brain Electrical Oscillation Signature Profile (BEOS), Narco-Analysis;
- Cyber Forensic: Cyber Pornography, Online Gambling, Intellectual Property Crimes, E-mail spoofing, Forgery, Cyber Defamation;
- Impression and Pattern Evidence;
- Forensic Odontology;
- Forensic Toxicology: Section 174 of Cr.P.C, Section 302 of IPC, Section 279 of IPC and Motor Vehicle Act: Accidents, Section 498 (A) of IPC: Dowry Death;
- Forensic Anthropology; and
- Forensic Pathology and Medico-legal Death Investigation.

Criminal Profiling: Criminal profiling is a systematic examination of characteristics of the offence. It is most operative in investigations of serial crimes, such as serial murder, because details may be gathered from more than one case. It is based on a psychological evaluation of the belongings seized from another offender. This helps in drawing a complete social and psychological assessment of the offender. Its role cannot be neglected in criminal investigation irrespective of the various question regarding accuracy, effectiveness and scientific validity.

The basic steps of criminal profiling include exhaustive analysis of the crime scene, scrutinizing the incidence and drawing comparisons with similar events in the past, evaluation of the victim's background and activities, considering all possible motives and preparing a detailed description of the suspects in order to compare it with previous cases.

V. ADMISSIBILITY AND LEGAL APPLICATIONS IN INDIA OF FORENSIC EVIDENCE

There has been a serious debate with regard to admissibility of scientific evidence. In *Selvi vs. State of Karnataka*,¹⁵ the Supreme Court held that brain mapping, narco-analysis tests cannot be conducted without the consent of the accused. It involves certain important questions relating to basic rights that are available to the accused under various provisions of law in India. A major problem in India is that we always look at provisions of law through the viewpoint of the accused and totally overlook the pain, desolation and ordeal of a victim and victim's family.

This is sine qua non for strengthening the criminal justice administration based on the strong pillars of the Rule of Law. Unfortunately, in India what is observed during prosecution is that a majority of the prosecutors hasten to jump to the conclusion of guilt of the accused regardless, of the fact whether he/she has in fact committed the offence. In India, due to the limitation of law, there is less application of forensic science to investigation and trial. The predominant questions therein are:

- How far such techniques are legitimate and supported by any authority?
- How far these forensic techniques are helpful in crime investigation?
- How could we obtain evidentiary importance from the forensic experts?

As per Article 20(3) of the Indian Constitution, no person accused of any offence shall be compelled to be a witness against himself. Article 20(3) is based upon the presumption drawn by law that accused person is innocent till proved guilty. It defends the accused by protecting him/her from the probable agony/ torture during investigation while under detention. Criminal law lays down that an accused is innocent until his/her guilt is proved beyond reasonable doubt. The Universal Declaration of Human Rights, Article 11 states under "Right to the presumption of innocence" states that "everyone charged with penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has all the guarantees necessary for his defence". Article 20(3) of the Constitution of India guarantees fundamental right against self-incrimination and guards against forcible testimony of any witness.¹⁶

On the basis of "Minimal Bodily Harm Doctrine", our courts are trying to keep the scope of Article 20(3) limited. This approach is reflected in the Bombay High Court verdict in *Ramchandra Reddy and Ors. vs. State of Maharashtra*¹⁷ which upheld the legality of the use of P300 or brain-imaging, fingerprinting, lie-detector test and the use of truth serum or narco

¹⁵ AIR 2010 SC 1974.

¹⁶ Durga Das Basu (2013), Introduction to the Constitution of India, 21st Edition, p. 2, LexisNexis, Gurgaon.

¹⁷ Cr. W.P (c) No. 1924 of 2003.

analysis.

VI. CONCLUSION

It can be concluded that with the changes in crime patterns and ‘progress’ of criminals, it is necessary to hold investigations scientifically and to make all sorts of scientific evidences admissible in the court. If a nation is not able to do so, it means that the nation itself is letting the lawbreakers loose in the society for committing crimes. Thus, it is apt to say that the object of law is to find the truth and not to shield the accused from the wrongdoing.¹⁸

The law is silent about the reliability and admissibility of scientific evidences. This is the main reason that judgmental law is for and against the use of scientific techniques in investigation. Thus, the government should formulate a policy wherein the investigating authorities be given training in such a way that they can make use of modern and scientific tools investigation in a more adroit manner. These techniques should be allowed because these are in consonance with the preservation of human rights. Thus, the rule of harmonious construction is needed to apply with regard to forensic evidence. An Act can be passed by the legislature which exclusively deals with scientific techniques. The Act should also contain precise definitions of all the terms such as scientific evidence, scientific techniques, investigation, scientific expert witness, scientific examination, tools of investigation, etc.

An understanding of the circumstances of a crime is pivotal to ensuring that correct charges are brought against the guilty. The mishandling and misinterpretation of evidence can be devastating to the goals of the criminal justice system and can result in the wrongful conviction of innocent persons and the failure to convict the perpetrator. The main dictum of criminal justice system is to provide fair justice. Indeed, forensic evidence is more authentic than ocular evidence. It is a boon to criminal justice system.

Law in any country is in essence the reflection of, and is based on, the common law of the land. For the law to be relevant, it has to be in harmony with the changing needs and aspirations of the society as a whole.

¹⁸ Mohammad Ajmal Mohammad Amir Kasab vs. State of Maharashtra AIR 2012 SC 3566.