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EXPENDING HORIZONS OF SCIENTIFIC EVIDENCE: A CRITICAL ANALYSIS*

*“Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while the courts will go a long way in admitting experimental testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.” -: **Frye v. United States,**¹*

Abstract: This paper is an exiguous endeavor to make an in-depth study of the scope for advancement in the field forensic evidence by way of review of the available literature in the field and make recommendations accordingly. It will be conceptual in nature and discuss the distinction of relevancy and admissibility of scientific techniques, like polygraph Test, Narco-analysis Test and DNA Test as applied to the cases involving Law of paternity as against criminal Law with reference to the ratio of decisions in different landmark cases. The paper has sketched out some of the probative, normative and jurisprudential context of criminal adjudication in India, with the aim of promoting better understanding of the institutional environment in which forensic science must operate. The paper will analyze the legislative conundrum with regard to applicability of forensic science in Indian criminal justice system. It will also try to probe the reasons as to why the role of forensic science in Indian criminal justice administration is still vintage type, at rudimentary stage or restrictive in nature, even though since last few decades, a tremendous technological advancement in scientific era has been made.

Key Words: Criminal Justice, Evidentiary value, Forensic Science, Scientific Evidence, Legal approach.

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¹ Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). <https://en.wikiquote.org/wiki/Evidence> (Accessed on July 9, 2016)

INTRODUCTION

“Truth must triumph” is the hallmark of justice. The interest of justice is best served by ascertaining the truth and the court should be furnished with the best available science and may not be left to blank upon presumptions, unless science has no answer to the facts in issue. When there is a conflict between a conclusive proof envisaged under law and a proof based on scientific advancement accepted by the world community to be correct, the latter must prevail over the former. The forensic evidence is that species of evidence collected by experts by using of latest scientific techniques to make it more reliable and useful for court to draw conclusions on the basis of that evidence.

Today’s world is full of complexities, innovation and rapid change. The advent of forensic science technologies have made dramatic scientific breakthroughs in decision making process of criminal cases but the study is required to analyze the exact impact of forensic evidence in determining the rate of conviction and acquittal. It is also required to assess the kind of methodology is required for procuring the particular scientific evidence. In this present scientific era it is matter of shock and grief that the present level of application of forensic science in crime investigation in India is quite low which has resulted consistently lowering the conviction rate . To the utter surprise only in 5-6% of the criminal cases are being referred to the Forensic Science Labs and Finger Print Bureau for investigation and which is the tip of the iceberg. It is the high time to realise the importance and need of scientific investigation of criminal cases. Here it is humbly submitted that the forensic evidence being clinching, cogent, correct and conclusive in nature, can reverse the trend to great extent and shall help in achieving the ends of Justice.

SCIENTIFIC EVIDENCE: A CONCEPTUAL CONNOTATION

The function of Law of Evidence is to lay down rules according to which the facts of a case can be proved or disproved before the court of law. In the words of Peter Murphy, “The evidence can be defined as any material which tends to persuade the courts of the truth or probability of some fact asserted before it.”² The definition as provided under the Law of evidence enacted by the legislature under the **Section 3** of evidence Act defines³ and includes: (1) all statements which the Court permits or requires to be made before it by witnesses, in relation to matters of fact under inquiry; such statements are called **oral evidence**; (2) all document including electronic records produced for the inspection of the Court, such statements are called **documentary evidence.**”

² Peter Murphy, ‘A practical Approach to Evidence’,14th ed., 1992,Pg1

³ <https://www.advocatekhaj.com/library/bareacts/indianevidence>, (Accessed on 5th June,2016).

Hence, as per the Indian evidence act the evidence is of two kinds, viz., (I) Oral, and (II) Documentary. It is humbly submitted the definition given under Indian evidence is defective as there are more evidences which cannot be categorized under any of the above mentioned heads directly, e.g., Sniffer Dogs evidence, it can neither be put under the oral or documentary evidence. The tracker dog's evidence has been categorized as the SCIENTIFIC EVIDENCE in Abdul Razak case.⁴ The other kinds of evidence which cannot be categorized as per the requisites of Indian Evidence Act are the evidence of demeanor of witnesses noted under the Section 280⁵ of the Criminal Procedure Code, 1973.

Scientific evidence refers to the evidence presented in a court after scientific tests or studies. It serves to support or counter a scientific theory or hypothesis. Scientific evidence is the result of objective testing of a theory or hypothesis in a way that can be reproduced by others. For example, test in an experiment or controlled trial.⁶ Competent and reliable scientific evidence means tests, analyses, research, studies, or other evidence based on the expertise of professionals in the relevant area, that has been conducted and evaluated in an objective manner by persons qualified to do so, using procedures generally accepted in the profession to yield accurate and reliable results.⁷ In law, scientific evidence is evidence derived from scientific knowledge or techniques. Most forensic evidence, including genetic evidence, is scientific evidence.

Etymologically the word 'forensic' comes from the Latin term "*forensis*", meaning "of or before the forum". The history of the term originates from Roman times, during which a criminal charge meant presenting the case before a group of public individuals in the forum. Both the person, i.e. accused and the accuser would give speeches based on their sides of the story and the case would be decided in favor of the individual with the best argument and delivery.

Forensic science is a combination of two different Latin words: 'forensic' and 'Science'. The former, 'forensic', relates to a discussion or examination performed in public. Because trials in the ancient world were typically held in public, it carries a strong judicial connotation. The second is

⁴ **Abdul Razak V. State of Maharashtra** (AIR 1970 SC 283).The evidence of the tracker dog is also relevant u/s-45 of IEA, 1972.

The Supreme Court held that evidence of the trainer of tracking dog is relevant and admissible in evidence, but the evidence can't be treated at par with the evidence of scientific experts analyzing blood or chemicals. The law is made clear by the Supreme Court by enunciating the principle that the evidence of dog tracking is admissible, but not ordinarily of much weight and not at par with the evidence of scientific experts.

⁵ **Section 280 of the Criminal Procedure Code,1973:**

Remarks respecting demeanor of witness- When a presiding Judge or Magistrate has recorded the evidence of a witnesses, he shall also record such remarks (if any) as he thinks material respecting the demeanor of such witness whilst under examination.

<https://www.kaanoon.com/indian-law/the-code-of-criminal-procedure/> (Accessed on June, 2016)

⁶ <https://definitions.uslegal.com/s/scientific-evidence> (Accessed on 5th June,2016)

⁷ **FTC v. Direct Mktg. Concepts, Inc.**, 2004 U.S. Dist. LEXIS 11628 (D. Mass. 2004), at <https://definitions.uslegal.com/s/scientific-evidence> , [Accessed on 5th June, 2016]

science, which is derived from the Latin word for 'knowledge' and is today closely tied to the scientific method, a systematic way of acquiring knowledge. Taken together, then, forensic science can be seen as the use of the scientific methods and processes in crime solving. Forensic science is the application of science to criminal and civil laws, mainly on the criminal side during criminal investigation, as governed by the legal standards of admissible evidence and criminal procedure. Forensic scientists collect, preserve, and analyze scientific evidence during the course of an investigation. While some forensic scientists travel to the scene of the crime to collect the evidence personally, others occupy a laboratory role, performing analysis on objects brought to them by other individuals. In addition to their laboratory role, forensic scientists testify as expert witnesses in both criminal and civil cases and can work for either the prosecution or the defense.

Forensic science, an amalgamation of almost all faculties of knowledge, is an essential and efficient enabler in the dispensation of justice in criminal, civil, regulatory and social contexts. 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, is capable of answering important questions and forms an integrated part of criminal justice system.⁸ It includes all well known techniques such as Narco-analysis, fingerprint analysis, DNA analysis, Brain mapping, ballistic, firearms or explosive culture, etc. It helps to convict those guilty of crime and helps to exonerate an innocent. Forensic evidence is a discipline that functions within the parameters of the legal system. Its purpose is to provide guidance to those conducting criminal investigation and to supply to courts accurate information upon which they can rely in resolving criminal and civil disputes.

SCIENTIFIC & FORENSIC EVIDENCE IN GLOBAL LEGAL PROSPECTIVE

The rules of evidence were developed over several centuries and are based upon the rules from Anglo-American common law brought to the New World by early settlers. The purpose is to be fair to both parties, disallowing the raising of allegations without a basis in provable fact. They are sometimes criticized as legally technical, but are considered as an important part of the system for achieving a just result. Sir William Herschel was one of the first to advocate the use of fingerprint in the identification of criminal suspects. Fingerprint evidence was first accepted by an Argentine court in the 1890s and in an English court in 1902. Following a 1993 Supreme Court ruling in *Daubert v. Merrell Dow Pharmaceuticals Inc.*⁹, judges required to apply what is known as the Daubert standard to determine if a witness' testimony can be considered scientific. This is based on a list of factors, including how the technique itself has been tested, error rates and what regulations govern its usage. These standards were more stringent than what had previously been required, putting the

⁸ Isha Tyagi and Nivedita Grover, 'Development of Forensic Science and Criminal Prosecution-India', 2 IJSRP Vol.4 (2014).

⁹ 509 U.S. 579 (1993)

onus on judges to determine what could be considered by a jury as scientific evidence¹⁰.

Science appears in court as the handmaid of justice and is, in that fundamental sense, subservient to juristic ends. Common law judges have consistently emphasized that trial with expert witnesses input must never become trial by experts usurping the proper, constitutional role of lay fact-finders. Yet at the same time, it would seem rational for fact-finders to defer to expert knowledge presented to them, at least when it truly concerns matters within the witness's field of expertise, is pertinent to the determination of disputed facts and is not contradicted by counter-expertise. Enduring unresolved tensions between expertise and lay adjudication grow in practical significance as the courts reliance on new and increasingly powerful forms of scientific evidence continues to expand.¹¹

In the United States, over 5,000 cases resulted in conviction based on solely on the forensic reports and on further investigation were required. This was mainly due to sea change brought about in federal rules of evidence and "The Innocence Protection Act, 2003" and the advancement of justice through 'US DNA Identification Act, 1994'. The DNA Technology Act, 2003 allowed the trial judges to accept and admit forensic evidence. The Innocence Protection Act, 2003 favours a person who is wrongly convicted and it is a model statute for obtaining post-conviction DNA testing¹². Most European countries like Canada, France, Italy, Austria, Slovak, Czech republic and united Kingdom and Australia have brought changes in their evidence legislations so as to incorporate relevant provisions on admissibility of forensic evidence by courts. Countries like the US and UK have also passed separate enactments on admissibility of DNA technology. It is humbly submitted that this trend in European countries is really encouraging for rest of the globe.

SCIENTIFIC & FORENSIC EVIDENCE IN INDIAN LEGAL PROSPECTIVE

Administration of criminal justice primarily rests on police, prosecution, courts and prisons. All these four organs are engaged in the vital task of prevention, detection, 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 system.¹³ In the last few decades, the infusion of technology in crime investigation has been a major breakthrough in the process of advancement of criminal justice. Police utilize scientific tools and techniques to detect a crime, reconstruct the crime scene, identify the alleged offender and establish vital links; the courts, on the other, take account of these

¹⁰ <https://www.smithsonianmag.com/history/first-case-where-fingerprints-were-used-evidence> (Last visited on June 30, 2016)

¹¹ Paul Roberts, "Paradigms of forensic science and legal process: a critical diagnosis", Available at : <https://royalsocietypublishing.org/doi/full/10.1098/rstb.2014.0256> (Last visited on June 05, 2016)

¹² Syed Maswood, "Admissibility of Scientific Evidence: Judicial Trends In India", Vol.IV(1) IUP 7 (2014)

¹³ Committee on Reforms of Criminal Justice System, Government of India, Ministry of Home Affairs, Volume I, 2003.

physical evidences, otherwise infallible and determine with enhanced accuracy the innocence or guilt of the offender. Somewhere, the efficiency and effectiveness of the criminal justice functioning has come to be intertwined with the extent of use of technological tools in crime investigation.

The scientific tools of interrogation namely- the Lie detector or the Polygraph test, the P300 or the Brain Mapping test and the Narco-analysis or the Truth Serum test constitutes the main three tests that have recently been developed for extracting confessions. These psycho-analytical tests are also used to interpret the behavior of the criminal (or the suspect) and corroborate the investigating officer's observations. However, legal questions are raised about the validity of tests like Narco-analysis, with some upholding its validity in the light of legal principles while others rejecting it as a blatant violation of constitutional provisions. It has been alleged that Narco-Analysis is a blatant violation of the Article 20(3) of the Indian Constitution. However, in this age of ever increasing crime rate, such tests often render a lot of help to the investigation agencies and hence, it is high time to blend Article 20 (3) with the Narco Analysis.

At the very outset, let us understand what Narco-Analysis is and how is it conducted. This will help us to decide whether such tests actually violate Article 20(3)¹⁴. In India the Forensic Science Laboratories in Bangalore and Gujarat, Narco-Analysis is conducted by injecting 3 grams of sodium pentothal dissolved in 300 ml of distilled water and this prepared solution is administered intravenously along with dextrose over a period of 3 hours with the help of anesthetist. Obviously this test has some invasion on the body of the incumbent. The rate of administration is so controlled to drive the suspect slowly into the state of hypnotic trance. The revelations made during the hypnotic trance are recorded both in video and audio form. The questions are designed carefully and are repeated persistently in order the ambiguities during drum interrogation. The report prepared by the experts is useful in the process of collecting the evidence.

Further, the privilege under Ar.20 clause (3) of Indian constitution is confined only to an accused i.e. a person against whom a formal accusation relating to the commission of an offence has been leveled which is in the normal course may result in the prosecution. A person against whom a first information report has been recorded by the police and investigation has been ordered by the Magistrate can claim the benefit of the protection. Further, the guarantee in Article 20 (3) is

¹⁴ Article 20(3) declares that no person accused of an offence shall be compelled to be a witness against himself. This provision may be stated to consist of the following three components:

1. it is a right pertaining to a person accused of an offence
2. it is a protection against compulsion to be a witness; and
3. it is a protection against such compulsion resulting in his giving evidence against himself.

against the compulsion to be a witness. In *State of Bombay v. Kathi Kalu Oghad*¹⁵, a Bench of the Supreme Court consisting of eleven judges held that: “It is well established that clause (3) of Article 20 is directed against self-incrimination by the accused person. Self-incrimination must mean conveying information based upon personal knowledge of the person giving the information and cannot include merely the mechanical process of producing documents in court which may throw a light on any of the points in the controversy, but which do not contain any statement of the accused based on his personal knowledge.” The third component of Article 20 (3) is that it is a prohibition only against the compulsion of the accused to give evidence against himself. In *Kalawati v. H.P. State*¹⁶, the Supreme Court held that Article 20 (3) does not apply at all to a case where the confession is made by an accused without any inducement, threat or promise.

Narco-analysis in the light of Article 20(3): Judicial Trends - The discussion on Article 20 (3) spells out three requirements which must be met with in order to claim protection under Article 20 (3). If any of these requirements is not met with, Article 20 (3) cannot be invoked. If Narco-analysis is carried out on an accused, it definitely fulfils the first requirement of Article 20 (3). However, the question is whether subjecting a suspect to such a test also fulfils the requirement of Article 20 (3). In the case of *State of Andhra Pradesh v. Smt. Inapuri Padma*¹⁷, the Court by ordering a few suspects to undergo a Narco-analysis test held that the question of putting the test of testimonial compulsion in case of suspects does not arise.

Hence, it is humbly submitted that if a person is suspected to have some information regarding the commission of an offence, there should be no prohibition on conducting a Narco-analysis test on him as the protection under Article 20 (3) is available to the suspected. Another requirement of Article 20 (3) is that there should be no compulsion on the accused to give testimony against himself. However, in Narco-analysis test, the question of compulsion does not arise because the prior consent of the person who is supposed to undergo such a test is always taken. Considering, all these we can easily conclude that Narco-analysis does not violate Article 20 (3) to the extent that the person undergoing such a test is not compelled to do so, rather it is done with the consent of the person who has full knowledge of such a test.

In the case of *Ramchandra Ram Reddy v. The State of Maharashtra*¹⁸, the Court posed with the question whether P-300, Lie Detector and Narco Analysis tests are violative of Article 20(3) observed: “*The question which falls for consideration, therefore, is whether such statement can be forcibly taken*

¹⁵ AIR 1961 SC 1808

¹⁶ AIR 1953 SC131

¹⁷Cri. L.J 2008 A.P. 3992.

¹⁸ <https://indiankanoon.org/doc/1943547> (Last visited on June 24, 2016); (1973) 1 SCC 471 .

from the accused by requiring him to undergo the Truth Serum Test against his will. It will be seen that such statement will attract the bar of Article 20(3) only if it is inculpatory or incriminating the person making it. Whether it is so or not can be ascertained only after the test is administered and not before. In our opinion, therefore, there is no reason to prevent administration of this test also because there are enough protections available under the Indian Evidence Act, Criminal Procedure Code and the Constitution Article 20(3), to prevent inclusion of any incriminating statement if one comes out after administration of the test. In so far as the third test (Narco-analysis) is concerned enough protection exists, recourse to which can be taken if and when the investigating agency seeks to introduce such statement as evidence.” The Court dismissed the petitions filed against these tests and held that these tests do not compel the accused or witness to incriminate himself and there is, therefore, no question of violation of Article 20(3) of the Constitution.

In *Selvi v State of Karnataka*¹⁹, the Court observed that the field of criminology has expanded rapidly during the last few years, and the demand for supplemental methods of detecting deception and improving the efficiency of interrogation have increased concomitantly. Narco- analysis for criminal interrogation is a valuable technique, which would profoundly affect both the innocent and the guilty and thereby hasten the cause of justice. Further observed that enough protections exist to which recourse can be had by accused if and when the investigating agency seeks to introduce into evidence the information or statement obtained under Narco-analysis Test, if the same is found inculpatory or confession. That apart, statement or information by accused in the said test may even show their innocence or may lead to discovery of a fact or object material in the crime. If so, it is not at all hit by Article 20(3).

In the case of *Rojo George v. Deputy Superintendent of Police*²⁰, the Court while allowing a Narco-analysis test observed that in present days the techniques used by the criminals for commission of crime are very sophisticated and modern. The conventional method of questioning may not yield any result at all. That is why the scientific tests like polygraph, brain mapping, Narco-analysis, etc. are now used in the investigation of a case. When such tests are conducted under strict supervision of the expert, it cannot be said that there is any violation of the fundamental rights guaranteed to a citizen of India

In *Santokben Sharmanbhai Jadeja v. State of Gujarat*²¹, the Court while upholding the order for conducting a Narco-analysis on the accused Santokben Sharmanbhai Jadeja, observed that “when after exhausting all the possible alternatives to find out the truth and nab the criminal/accused and when it is found by the prosecuting agency that there is no further headway in the investigation

¹⁹ AIR 2010 SC 1974

²⁰ AIR 1953 SC 131

²¹ 2008 Cr.L.J. 3992

and they are absolutely in dark, there is a necessity of such a test. On the basis of revelations and/or the statement recorded while conducting/performing the Narco Analysis Test, prosecuting agency may have some clues which would further help and/or assist the Investigating Agency to further investigate the crime and at this stage, there will not be any bar of Article 20(3) of the Constitution of India and merely conducting/performing of a Narco-analysis Test on the accused, the protection guaranteed under Article 20(3) of the Constitution of India is not violated. As stated above, only and only at the stage when the prosecuting agency is likely to use such statement as evidence and if it is inculcating and incriminating the person making it, it will attract the bar of Article 20(3).”

The Court further observed that various provisions under the Criminal Procedure Code right from Sections 156 to 159 and other related provisions, collection of evidence by the police officer is permitted under the Law. Conducting the Narco-analysis test on accused is to be considered as process of collection of such evidence by the Investigating Agency. The Investigating Agency cannot be prevented to interrogate the accused at the stage of investigation and restraining the Investigating Agency to further investigate the crime through the aforesaid two tests would tantamount to interfere with the right of the Investigating Agency to investigate the crime of which it is statutorily authorized.

In *Dinesh Dalmia v State*²², the Court observed that where the accused had not allegedly come forward with the truth, the scientific tests are resorted to by the investigation agency. Such a course does not amount to testimonial compulsion. From the above discussion, it is very evident that conducting a Narco-analysis test does not violate Article 20 (3) *per se*. Only after conducting the test, if the accused divulges information which is incriminatory, then it will be hit by Article 20(3). Other information divulged during the test can help the investigation. Thus, there is no reason why we should prohibit such a test on grounds of unconstitutionality.

However, the legal hurdles in use of this technique should be removed first before its application. It is high time that we blend this test with Article 20(3) in such a manner that no questions are raised as to its constitutional validity. For this purpose, it is essential that the Union Government should come out with certain guidelines which are to be strictly followed while conduction such a test.

It has been held by Supreme Court in *Gajraj v. State (NCT) of Delhi*, that accused can be convicted

²² 2006 Cr.L.J. 2401

on the basis of conclusive scientific evidence. This scientific evidence may be of any kind, be that mobiles phones, internet, DNA samples, etc. In everything technology is involved, so these scientific techniques should be incorporated in criminal justice system too.²³ Moreover, Narco-analysis, brain-mapping and polygraph can be conducted on any person who is not an accused or witness. This means in such circumstances, results of these tests are admissible in the court of law vide sec. 27 or sec. 45. The permission of court is required if investigation authorities want to subject accused to these tests and if accused consents then authorities can conduct these test. This appears to be arbitrary. If accused has committed a crime obviously, he will not consent. Investigation is hampered with such decisions of Apex Court. If given an option, accused will never consent for giving DNA, hair, nail samples, finger impressions etc. and if investigation authorities can extract all these without the consent of accused, consent should not be given so much of importance in Narco-analysis, Polygraph and Brain-mapping.

ROLE OF FORENSIC SCIENCE IN CRIME INVESTIGATION:

Forensic science is one of the important aspects of criminal justice. Basically, it deals with scientific examination of physical clues collected from the crime scene. Forensic science explains the identity (who) of the suspect who committed the crime. The evidence clearly indicates the type (what) of the crime committed. The circumstances speak out about the time (when) of the incident. The 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 investigators reconstruct identity of the offender and the victim.²⁴ The criminal justice system in India, apart from Constitution and Evidence Act largely depend upon Code of Criminal Procedure and Indian Penal Code, 1860. The Penal Code provides punishment and criminal procedure code ensures that the accused person gets fair trial. Investigation plays a crucial role in the administration of criminal justice system. It is one of the most important aspects of Criminal Procedure Code. Term investigation has been defined in the section 2(h)²⁵ of the Criminal Procedure Code, 1973. It includes all the proceedings for the collection of evidence conducted by a police officer or any person (other than a magistrate) who is authorized by a magistrate in this behalf.

Forensic science plays a vital role in the criminal justice system by providing scientifically based

²³ 2012(1) R.A.J. 28.

²⁴ 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.

²⁵ It lays down: " The investigation includes all the proceedings under this Code for the collection of evidence conducted by a police officer or by any person (other than a Magistrate) who is authorized by a Magistrate in this behalf"

information through the analysis of physical evidence, the identity of the culprit through personal clues like fingerprint, footprints, blood drops or hair. It links the criminal with the crime through objects left by him at the scene and with the victim or carried from the scene and the victim. On the other hand, if the clues recovered do not link the accused with the victim or the scene of occurrence, the innocence of the accused is established. 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.²⁶

Role of DNA Test to the Cases Involving Paternity issues – The controversy on the cases involving paternity issue have been set at rest by the judiciary at the pinnacle by the decision in the case, *Dipanwita Roy (Appellant) v. Ronobroto Roy (Respondent)* (Decided by honorable Supreme Court of India on 15 October, 2014) .This case is considered as the land mark case in the history of judicial pronouncement on the law of evidence. Deciding the issue of proving infidelity of a spouse, the bench of J.S. Khehar and R.K. Agrawal, J.J. held that DNA test can be conducted to determine the veracity of the allegations of adultery. However, considering the fact that the said test will automatically determine the issue of legitimacy, the Court held that the presumption of legitimacy as given under Section 112²⁷ of the Evidence Act, 1872 will not be disturbed and that if the direction to hold such a test can be avoided, it should be so avoided as the legitimacy of the child should not be put to peril .

In the present case, the husband has sought divorce from his wife due to alleged infidelity by her and had also named the person has fathered the child born to his wife, thereby making an application for DNA test to prove the paternity of the child in order to prove the alleged infidelity. The Court hence explained the importance of DNA test by stating that DNA testing is the most legitimate and scientifically perfect means, which the husband could use, to establish his assertion of infidelity. The Court also said that DNA test should also simultaneously be taken as the most authentic, rightful and correct means also with the wife, for her to rebut the assertions made by the husband, and to establish that she had not been unfaithful, adulterous or disloyal .

The Court, hence, held that the wife shall be given the liberty to comply with or disregard the

²⁶ Jyotirmoy Adhikary, 'DNA Technology in Administration of Justice', (LexisNexis, Butterworths, 2007)

²⁷ Section 112 in The Indian Evidence Act, 1872 States as under

Birth during marriage, conclusive proof of legitimacy.—The fact that any person was born during the continuance of a valid marriage between his mother and any man, or within two hundred and eighty days after its dissolution, the mother remaining unmarried, shall be conclusive proof that he is the legitimate son of that man, unless it can be shown that the parties to the marriage had no access to each other at any time when he could have been begotten.

order of DNA test and in case, she declines to undergo the said test, the Court shall draw presumption as per Illustration (h) of Section 114²⁸ of the Evidence Act, 1872.

DIFFERENT LEGAL PROVISIONS UNDER DIVERSE LAWS SUPPORTING SCIENTIFIC EVIDENCE:

Articles 20(3) of the Indian Constitution provide that 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 the accused person is innocent till proved guilty. It also protects the accused by shielding him from the possible torture during investigation in police custody. Criminal law considers an accused as innocent until his guilt is established beyond reasonable doubt. ²⁹The Universal Declaration of Human Rights, Article 11, states: “Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defence”³⁰.

Article 20 (3) of the Constitution of India guarantees fundamental right against self incrimination and guards against forcible testimony of any witness. The fundamental right guaranteed under Article 20 (3) is a protective umbrella against testimonial compulsion in respect of persons accused of an offence to be witness against themselves. The protection is available not only in respect of evidence given in a trial before Court but also at previous stage. The protection against self-incrimination envisaged in Article 20 (3) is available only when compulsion is used and not against voluntary statement, disclosure or production of document or other material. This right has been taken to ensure that a person is not bound to answer any question or produce any document or thing if that material would have the tendency to expose the person to conviction for a crime ³¹.

Sec. 73 of the Indian Evidence Act empowers the court to direct any person including an accused to allow his finger impressions to be taken. The Supreme Court has also held that being compelled to give fingerprints does not violate the constitutional safeguards given in Art. 20(3).

There are questions as to whether forensic evidence violates Art. 20(3) of Indian Constitution or

²⁸ **Section 114** in The Indian Evidence Act, 1872- “Court may presume existence of certain facts. —The Court may presume the existence of any fact which it thinks likely to have happened, regard being had to the common course of natural events, human conduct and public and private business, in their relation to the facts of the particular case.”

Section 114, illustration (h) in The Indian Evidence Act, 1872 :

That if a man refuses to answer a question which he is not compelled to answer by law, the answer, if given, would be unfavorable to him;

²⁹ Universal Declaration of Human Rights, United Nations High Commissioner For Human Rights, http://www.icnl.org/research/library/files/Transnational/UNIVERSAL_DECLARATION_OF_HUMAN_RIGHTS. (Last visited on 09/02/2016).

³⁰ *ibid*

³¹ McDougall, Justice Robert, ‘*The Privilege against Self-incrimination: a time for reassessment*’, Paper presented at New South Wales Bar Association, 18 October 2008

not? In *The State of Bombay v. Kathi Kalu Oghad & Others*³², the court held that giving thumb impression, specimen signature, blood, hair, semen etc. by the accused do not amount to 'being a witness' within the meaning of the said Article. The accused, therefore, has no right to object to DNA examination for the purposes of investigation and trial.

In any criminal investigation, interrogation of the suspects and accused plays a vital role in extracting the truth from them. From time, immemorial several methods, most of which were based on some form of torture have been used by the investigating agencies to elicit information from the accused and the suspects. With the advancement of science and technology, sophisticated methods of lie detection have been developed which do away with the use of "third degree torture" by the police. The scientific tools of interrogation namely- the Lie detector or the Polygraph test, the P300 or the Brain Mapping test and the Narco-analysis or the Truth Serum test are the main three tests that have recently been developed for extracting confessions. These psychoanalytical tests are also used to interpret the behavior of the criminal (or the suspect) and corroborate the investigating officers observations. Section 156 (1) of the Code of Criminal Procedure which reads "Police officer's power to investigate cognizable cases" states that any officer in charge of a police station without the order of a Magistrate can investigate any cognizable case which a Court has power to inquire into or try under the provisions of Chapter XIII. "Investigation" as defined in Section 2 (h) of Cr.P.C includes all the proceedings under the Code of Criminal Procedure for the collection of evidence conducted by a Police Officer or by any person (other than a Magistrate) who is authorized by a Magistrate in that behalf. Thus, collection of evidence by Police Officer is permitted under law. Conducting Narco-analysis Test on accused is in the process of such evidence by the investigating agency.

Expert evidence has been incorporated in the Indian Evidence Act, 1972 under Sec 45. It runs as: "When the court has to form an opinion upon a point of foreign law or of science or art or as to identity of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art or in questions as to identity of handwriting or finger impressions are relevant facts. Such persons are called experts". Hence, the Section 45 makes opinion of specially skilled persons relevant.

In *Bal Krishna Das v. Radha Devi*³³, "an expert was defined as a person who by his training and experience has acquired the ability to express an opinion". The purpose of an expert opinion is primarily to assist the court in arriving at a final conclusion³⁴. But expert opinion cannot form the

³² AIR 1961 SC 1808

³³ AIR 1989 All 133.

³⁴ Dayal Singh v. State of Uttaranchal, 2012(3) RCR (Criminal) 949

sole basis of conviction of accused³⁵, unless something inherently defective appears, court cannot substitute opinion of an expert³⁶. In general, it may be said that there are two distinct classes of cases in which expert testimony is admissible. In one class of cases, the facts are to be stated by the experts and the conclusion is to be drawn by the courts. In the other group of case the experts states the facts and gives his conclusion in the form of an opinion which may be accepted or rejected by the courts³⁷.

An amendment in 2005 is positive, protective and affirm towards the recognition of scientific tests. Sec 53 empowers the investigative agencies to take recourse to an efficient and scientific method of investigation.³⁸ Under this section 53 Cr.P.C., Medical Examination of accused can be done at the request of police officer and this would be part and parcel of investigation process only. This could be done even after framing of the charge by the court. In fact, under sec. 53-A³⁹ specifically DNA test has been included. The expression 'such other tests' used in the Explanation to the amended Section 53 of Code of Criminal Procedure should be broadly interpreted in such a way as to include within its ambit the Narco-analysis, polygraph and brain mapping. It is humbly submitted that the examination of the person has been defined by an inclusive definition and the use of words "shall include" in the explanation in the Code of Criminal Procedure suggests that all the modern and scientific techniques are included in it. There is no reason of excluding Narco-analysis, Polygraph and Brain Mapping from its scope. Thus, the term examination of a person in

³⁵ S. Rajendran v. State 2011(4) Madras Law Journal (Criminal) 537.

³⁶ Mahalakshmi v. State of To No, 2012(6) RCR (Criminal) 100.

³⁷ C.d. Field, "Expert Evidence", Delhi: Delhi Law House, 4th edition, 2012, p. 1.

³⁸ Section 53 provides: "(1) When a person is arrested on a charge of committing an offence of such a nature and alleged to have been committed under such circumstances that there are reasonable grounds for believing that an examination of his person will afford evidence as to the commission of an offence, it shall be lawful for a registered medical practitioner, acting at the request of a police officer not below the rank of sub-inspector, and for any person acting in good faith in his aid and under his direction, to make such an examination of the person arrested as is reasonably necessary in order to ascertain the facts which may afford such evidence, and to use such force as is reasonably necessary for that purpose. (2) Whenever the person of a female....., a female registered medical practitioner."

³⁹ It provides: "Examination of person accused of rape by medical practitioner: 1. When a person is arrested on a charge of committing an offence of rape or an attempt to commit rape and there are reasonable grounds for believing that an examination of this person will afford evidence as to the commission of such offence, it shall be lawful for a registered medical practitioner employed in a hospital run by the Government or by a local authority and in the absence of such a practitioner within the radius of sixteen kilometers from the place where the offence has been committed by any other registered medical practitioner, acting at the request of a police officer not below the rank of a sub-inspector, and for any person acting in good faith in his aid and under his direction, to make such an examination of the arrested person and to use such force as is reasonably necessary for that purpose. 2. The registered medical practitioner conducting such examination shall, without delay, examine such person and prepare a report of his examination giving the following particulars..... (iv) the description of material taken from the person of the accused for DNA profiling, and" (v) other material particulars in reasonable detail. 3. The report shall state precisely the reasons for each conclusion arrived at..... shall, without delay, forward the report of the investigating officer, who shall forward it to the Magistrate referred to in section 173 as part of the documents referred to in clause (a) of sub-section (5) of that section." Explanation attached to this section lays down that, In this section (Section 53 Cr.PC.) and in Sections 53A and 54, "(a) "examination" shall include the examination of blood, blood stains, semen, swabs in case of sexual offences, sputum and sweat, hair samples and finger nail clippings by the use of modern and scientific techniques including DNA profiling and such other tests which the registered medical practitioner thinks necessary in a particular case."

terms of Section 53 Code of Criminal Procedure takes within its ambit the examination of a person by way of Narco-analysis, polygraph or brain mapping test as these are modern and scientific techniques. In other words, there should be an acceptance that Section 53, Code of Criminal Procedure provides statutory sanction for the narco-analysis, polygraph and brain mapping and, said tests can be used as helping tools in the process of investigation. In the case of *Maghar Singh @ Magha v. State of Punjab*,⁴⁰ it was held by the court that consent of accused is not required in medico-legal examination of accused section 53 and 53-A of criminal procedure code permit the investigation officer to arrest the accused and if he finds that some evidence could be made available from the body of the accused, then he could get him medico-legally examined. It is humbly submitted here that section 53-A should not be confined only to DNA profiling specifically. No distinction should be made between scientific techniques and Section 53 and 53-A should be construed to include Brian-mapping, Narco-analysis and Polygraph test.

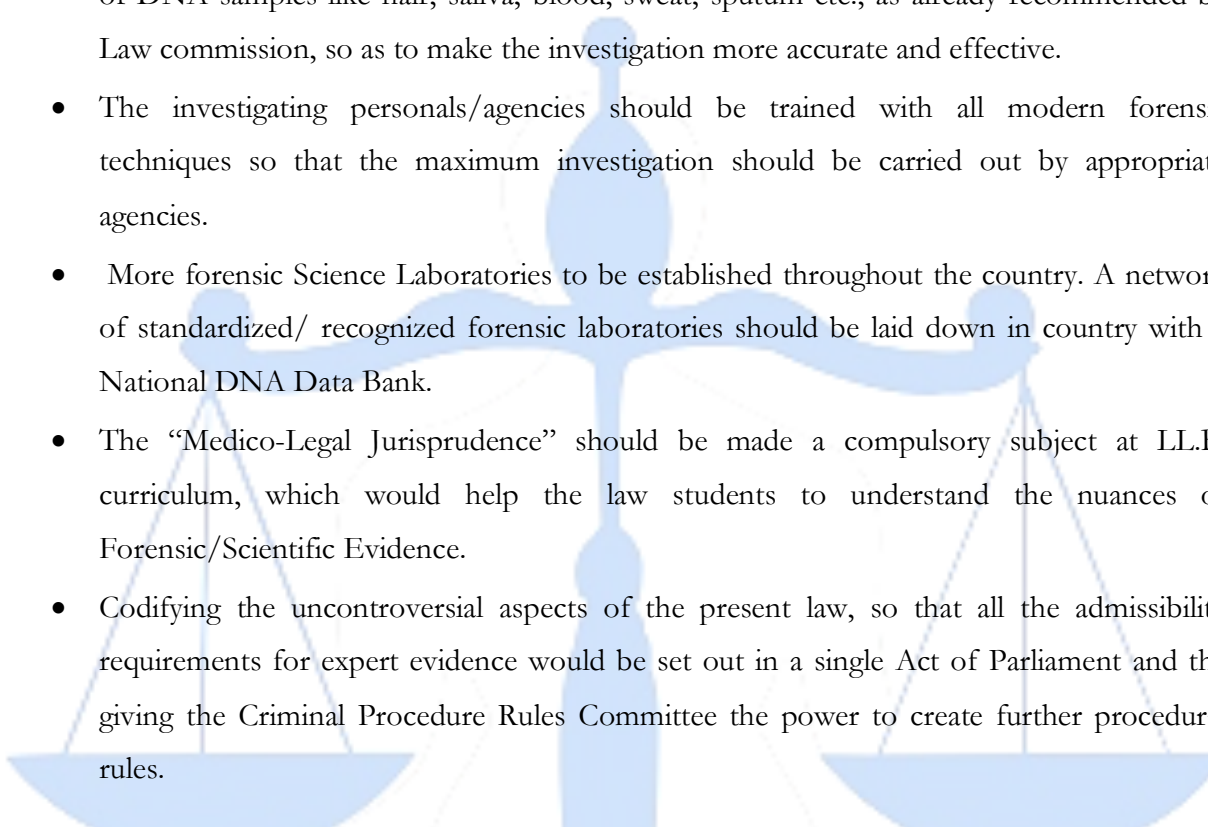
Any document purporting to be a report under the hand of a Government scientific expert to whom the section 293 Cr.P.C.,1973 applies, upon any matter or thing duly submitted to him for examination or analysis and report in the course of any proceeding under this Code, may be used as evidence in any inquiry, trial or other proceeding under this Code.⁴¹

CONCLUSION AND RECOMMENDATIONS

It is hereby concluded after a lot of debate, discussion and cogitation over different facets of scientific evidence that the forensic evidence and other expert testimony will advance the cause of justice only on condition that the evidence is methodologically robust in its own terms, addressed to legally pertinent issues, and communicated in a way that makes its evidentiary value for the instant proceedings transparent and intelligible to non-specialists. The Indian legal structure and its allied subsidiaries need to be remolded towards the achievement of result oriented forensic investigation and trial, so that speedy remedy & justice to victims of heinous crimes may be provided. It is also clear that the provisions of criminal procedure code and evidence act have the capacity to include the scientific evidence. It is also, hereby, recommended that the existing procedural laws need to be amended to inculcate the clear provisions regarding the admissibility and relevancy of different scientific evidence. It would be pertinent to put forth few more suggestions :

⁴⁰ 2012(3) RCR (Criminal) 94.

⁴¹ This section 293 (4) Cr.P.C. applies to the following Government scientific experts, namely:- (a) any Chemical Examiner or Assistant Chemical Examiner to Government; (b) the Chief Inspector of-Explosives; (c) the Director of the Finger Print Bureau; (d) the Director, Haffkeine Institute, Bombay; (e) the Director 1*[Deputy Director or Assistant Director] of a Central Forensic Science Laboratory or a State Forensic Science Laboratory ; (f) the Serologist to the Government.

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- Requisite legal, procedural and administrative measures should be taken to bring forensic science into the main stream of administration of criminal justice system in India.
 - The DNA Sampling should be excluded from the preview of Article 20(3) of Indian constitution which put forth the principle of right against self-incrimination for collection of DNA samples like hair, saliva, blood, sweat, sputum etc., as already recommended by Law commission, so as to make the investigation more accurate and effective.
 - The investigating personals/agencies should be trained with all modern forensic techniques so that the maximum investigation should be carried out by appropriate agencies.
 - More forensic Science Laboratories to be established throughout the country. A network of standardized/ recognized forensic laboratories should be laid down in country with a National DNA Data Bank.
 - The “Medico-Legal Jurisprudence” should be made a compulsory subject at LL.B. curriculum, which would help the law students to understand the nuances of Forensic/Scientific Evidence.
 - Codifying the uncontroversial aspects of the present law, so that all the admissibility requirements for expert evidence would be set out in a single Act of Parliament and the giving the Criminal Procedure Rules Committee the power to create further procedural rules.

Hence, the last but not least the Investigators, prosecutors, defense lawyers and courts need to be attentive both to what specific fact or facts scientific evidence purports to prove (questions of relevancy admissibility and materiality), and to the strength of the inferential conclusion to which the evidence points (the probative value or weight of the evidence). Scientific evidence is capable of being dispositive of criminal proceedings, even in the absence of a contested trial. Defense counsel may be inclined to advise their clients to plead guilty if the ostensible strength of the scientific case against the accused appears overwhelming. It is high time for legislature to implement the recommendations of Malimath Committee Report in all plausible and possible ways so as the justice should not only be done but it should be seems to be done.