

# FORENSIC SCIENCE: A BOON OR BANE FOR CRIMINAL JUSTICE SYSTEM

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## Introduction

Law is dynamic and not static and therefore, as society evolves, law has to keep in consonance with the changing social order. Law is the instrument of societal change and the judiciary has the responsibility of interpreting the law for the greater good.<sup>1</sup> Therefore, it is clear that the judicial mind must stay in touch and keep in step with the advancement of humanity. To combat organized crime, its detection, investigation and prevention method have to be employed synchronously.<sup>2</sup> If the criminals use new technology in committing the crimes, the enforcement agencies have to be used to the new techniques in solving such crimes. If the enforcement agencies do not use these new technologies for solving such complicated the crimes, it would be very difficult to detect the perpetrators of such crimes. Therefore, in the context of the changing organized modern criminal who are taking shelters behind and making full use of new sophisticated technologies .Krishna Iyyer J. Remarked, “the courts self-criminate themselves if they keep the gates partly open for culprit to flee the justice under the guise of interpretative enlargement of golden rule of criminal jurisprudence.”<sup>3</sup>

At present forensic science is playing pivotal role in criminal justice system. With the help of forensic science it became possible to solve the crime and detect the criminal. It is really very helpful to criminal justice system. As already mentioned above, that all societies are undergoing through drastic social changes all around the world, at a very rapid pace. Similarly, India has also changed from a colonial subject race to a democratic republic. Sizeable industrial complex has sprung up. The transport facilities have been revolutionized. There is a growing shift from a rural society to an urban one. All these alterations have made the old techniques of criminal investigation obsolete. In the British days the police was so much feared that once it had laid its hands upon an individual, he would be compelled to ‘confess’ to any crime, he may not have even known. The fear is vanishing now. The use of ‘third degree’ techniques used in those days does not find favor with the new generation of police officers and judges.<sup>4</sup>

The field of activities of the criminal is widening day by day at a terrific rate. Formerly, the criminals were usually local, now we find that national or international criminal is a common phenomenon. Smuggling, drug trafficking, financial frauds and forgeries offer fertile and ever expanding fields.<sup>5</sup> All this pose a serious challenge before the law enforcement agencies as well as before the Courts. Role of scientific experts in criminal investigations become vital now as most of the crimes in modern times need through and complete investigation beyond any shadow of doubt.

Coming on the investigations, the physical evidence evaluated by an expert is objective now a days, with the intention of finding out not only the clue against the criminals but also for defending it before the Court of law. If a fingerprint is found at the scene of crime, it can belong to only one person, and it is the job of scientific investigator to find out the real person to whom that belongs. If this person happens to be the suspect, he must account for its presence at the scene. Likewise, if a bullet is recovered

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<sup>1</sup> Philosophy propounded by Jeremy Bentham and John Stuart Mills.

<sup>2</sup> Nathuni Yadav v. State of Bihar (1998)9 SCC 238 at 242.

<sup>3</sup> Nandini Sathpathy v. P.L. Dani & Anr. AIR 1978 SC 1025 at 1032.

<sup>4</sup> Supra note 3,p no 3-4.

<sup>5</sup> Ibid.

from a dead body, it can be attributed to only one firearm. If this firearm happens to be that of the accused, he must account for its involvement in the crime. Such evidence is always verifiable.<sup>6</sup>

### **Different Techniques of Forensic Science**

Not all Physical evidence present at the scene of crime can be collected manually because of their coarse nature and some are invisible to naked eyes. Moreover, many of such evidence used to be fragile in nature which would soon vanish if not collected at proper time with proper technique. Therefore, different techniques relating with forensic science are evolved now which are working in very effecting manner. They are proving as very helpful tools for criminal justice system. Some of them are, namely, Narco-Analysis test, DNA profiling test, polygraph test, brain fingerprinting, ballistic fingerprinting, criminalistic, forensic odontology etc are the techniques relating with the forensic science.

### **Narco-Analysis Test**

From the time immemorial to till date, Narcosis is a state of stupor induced by drugs. The use of narcotics as a therapeutic aid in psychiatry was limited to the use of opium for mental disorder by the early Egyptians. J. Stephen Horsely introduced the term “Narco-Analysis” in 1936 for the use of narcotics to induce a trances like state in which the patient talks freely and intensive psychotherapy may be applied. Now days psychoanalytical and narcoanalytical tests are carried out to interpret the behaviour of the suspect, accused person or the criminals.<sup>7</sup> At present this technique has taken important place in Indian criminal justice system. There are so many cases in which court has given order for conducting this test.

The technique to extract truth from suspect through Narco-Analysis in present time may prove a big importance for the investigating agency in India where the gap between the rate of conviction and rate of accusation are very large.<sup>8</sup> As stated by Dr. M.S. Rao, Chief Forensic Scientist, Govt. Of India<sup>9</sup> : “Forensic psychology plays a vital role in detecting terrorist cases. Narco-Analysis and Brainwave Fingerprinting can reveal future plans of terrorists and can be deciphered to prevent terror activities preventive forensics will play a key role in countering terror acts. Forensic potentials must be harnessed to detect and nullify their plans. Traditional methods have proved to be a failure to handle them. Forensic facilities should be brought to the doorstep of the common man. Forensic activism is the solution for better crime management<sup>10</sup>.”

### **DNA Profiling**

The DNA is the genetic material which carries genetic information from one generation to another generation and that makes every individual different, except for genetically identical twins. A pattern of chemical signals i.e., genetic code, has been discovered within the DNA molecules, which is very unique to each individual, just like their actual fingerprint. DNA technique has now been expressly included among various forms of medical examination in amended explanation to section 53 of CrPC. DNA Profile is different to section DNA sample which can be obtained from bodily substance. DNA Profile of offender and suspects are useful practices since newly obtained DNA sample can be readily matched with existing profiles that are already in the possession of law enforcement agencies. Matching of DNA sample is emerging as a vital tool for linking suspect to specific acts.<sup>11</sup> The importance of the fast developing DNA technology and its impact on the rights of an individual and its societal effect have created an urgent need for getting acquainted with and understanding the basics of modern genetic science for an effective role by all those who are concerned with justice delivery system. In any informed discussion about the ethical legal and social implications of the “New Genetics”, a basic scientific

<sup>6</sup> Ibid.

<sup>7</sup> Deepak Ratan and Mohd. Hasan, Zaidi, Forensic Science in India and the World 357 (Allahabad Law Agency, Allahabad, edn. 2008).

<sup>8</sup> Ajay Kr. Barnwal and Dr.S.N.Ambedkar, “Narco-analysis Test: An analysis of various Judgments of Indian Judiciary” IX (10) *IOSR-JHSS* 52-57 (2014).

<sup>9</sup> Keynote address given to the 93rd Indian science congress available at <http://mindjustice.org/india2-06.htm>. (Last visited on 10/07/2018).

<sup>10</sup> . Ibid.

<sup>11</sup> State of Chhattisgarh v. SUNIL alias Balikaran Sahu and Another 2017 CriLJ 1854.

background is an essential pre-requisite which need not wait till an expert witness enters the witness-box to enlighten the surroundings.<sup>12</sup>

The major scientific development in the area of DNA technology and its facts revelation has solved many intricating crime related mysteries specially in the area of rape, mass killing either because of natural or human agencies and in solving civil dispute specially related with the paternity of a child and in finding the identity of an individual .it has also been used in solving the cases of exchange of babies in hospital wards and also protection of farmers rights and biodiversity.<sup>13</sup> The modern day biology is seeking new and better ways to enhance our quality of life through the application of technology (Biotechnology) and rapid progress in research on human genome. The currently developing technique of DNA promises a degree of accuracy greater even than current method of finger printing suspect. DNA profiling has been used extensively for paternity testing as well as the criminal investigation. DNA profiling has particular application to the criminal law because of the possibility that it offers of determining whether blood, hair, or semen deposits located at the scene of a crime come from a person suspected of having committed the crime.<sup>14</sup> At present time DNA Profiling is playing pivotal role in criminal justice system because by this scientific technique it became possible to detect the criminal easily.

### **Polygraph Test**

Another marvelous innovation in the field of criminal investigation is Polygraph Test or Lie Detector Test, which is based upon human impulses. Not every lie involves emotion, but those matters which may cause specific problem for the liar, would indeed involve emotions. When emotion occurs, physiological changes happen automatically without choice or deliberation. The literature indicates that a person who is lying tends to have a higher pitched voice than truth-teller because of stress. This allows a thorough analysis of the truth about lie-detector.<sup>15</sup>

Lie detector or Polygraph tests, in additional terms are rarely used in criminal trials. The theory underlying a lie detector test is that lying is distressing and that this distress can be calculated and record on Polygraph machine. The Polygraph is a pneumatically operated device, which concurrently records changes in a subject's blood pressure, pulse, respiration rate and depth, psycho galvanic skin reflex (skin resistance to electrical current) and in some cases muscular activity. When a subject is put to the 'Polygraph' test (Lie-detector test) the machine reflects and records only the subjects' physiological responses to the questions asked by the operator who then interprets the Polygraph and determines whether the subject is lying or otherwise. The instrument in fact, records the sign of internal stress accompanying deception. Before conducting, the Polygraph test, there are some steps which the examiner has to prepare the subject and himself are to be followed –

- Go through the background of the case.
- Formatting questionnaire based on the background of the case.
- Apprise the subject on the objective of the test, the nature of the instrument, its various attachment and recording.<sup>16</sup>

During the Polygraph test an expert and skilled examiner will make assessment of the following procedure –

- a) As assessment of examiner's emotional state;
- b) Medical fitness of the examinee;
- c) To identify overly responsive behaviour specialised tests be conducted;
- d) To asses overly responsive behaviour specialised test be conducted ;
- e) To do factual analysis of case information and
- f) To do pre-test interview and detail review of question.<sup>17</sup>

<sup>12</sup> Genetic Science, "Human Health and Gene Patent", A.L.R.C Issue Paper 27 Intellectual Property Rights Over Genetic Material available at <http://shodhganga.inflibnet.ac.in/jspui/bitstream/10603/167552/10/09-chapter%204.pdf>(visited on date 15/06/2018).

<sup>13</sup> Dr. A.K. Srivastava, "DNA Testing and Human Rights Implication in Civil and Criminal Investigation"<sup>4</sup> CrLJ 81(April, 2007).

<sup>14</sup> DNA and Its Meaning available at <http://www.forensicDNA.com> (last modified 9 -5-2010).

<sup>15</sup> Dr. Subhas Chandra Singh, "The Truth About Lies : Do Lie –Detector Work ?"VII Crilj161(2007).

<sup>16</sup> "In Focus Lie Detector" LawZ10(2010).

## Judicial Response and Forensic Science

keeping on the line of the Gautam Kundu case<sup>18</sup>, the apex court in *Smt .Kanta Devi v. Poshiram*<sup>19</sup> has held that the result of a genuine DNA test is said to be scientifically true .But even that is not is not enough to escape from the conclusiveness of section 112 of the Act, e.g. , a husband and wife were living together during the time of conception but DNA test revealed that the child was not born to the husband ,the conclusiveness in the law would remain un rebuttable .This may look hard from the point of view of the husband who would be compelled to bear the fatherhood of a child of which he may be innocent .it is sublime public policy that children should not suffer social disability on account of the laches or lapses of parents .For this law leans in favour of the innocent child from being basterlized if his mother and father were living together during the time of conception.

In case of *Rohit Shekhar v. Narayan Dutt Tiwari & Anr*<sup>20</sup>, in this case it was held by the delhi high court on the behalf of DNA testing that. Narayan Dutt Tiwari is the biological father of Rohit Shekhar.

*Mukesh and Another v. State for NCT of Delhi and Others*<sup>21</sup>, in this case DNA Profile generated from sample of accused person matching DNA Profile of victim and injured informant. Analysis of biological samples linking with each of accused person and with crime scene . Doctors conducting analysis testifying that all experiments conducting in conformity to guidelines and methodology validated and recommended for use in laboratory. Analysis of DNA Profiles by doctors revealing samples were authentic and establishing identities of all persons beyond reasonable doubt. DNA reports linking accused person with crime, accurate and reliable.

Recently the Uttarakhand High Court in case of *State Of Uttarakhand vs Sartaj Khan*<sup>22</sup>, it was held by the court that the Court can take judicial notice of the fact that the minors are kidnapped by the organized gangs to force them into beggary. The Police Department should conduct DNAs of the parents as well as of the children of the beggars to ensure that the children found in their company are their own children. The Court again recommends that the begging should be banned throughout the State of Uttarakhand by bringing suitable legislation on the analogy of Uttar Pradesh Prohibition of Beggary Act, 1975. The religious places should be free of beggars.

*State of Chhattisgarh v. Sunil alias Balikaran Sahu And Another*<sup>23</sup>, in this case it was held by the court that delay in sending sample of saliva spit of accused for examination can not be sole ground to acquit accused in presence of other criminating circumstances.

*Krishan Malik v. State of Haryana*<sup>24</sup>, it was held that procedure of getting DNA test or analysis and matching of semen of accused is necessary to make it a fool proof case.

*Sabra khatoon v. state of Jharkhand and others*<sup>25</sup>, in this case it was held that no individual could be forcibly subjected to any of such techniques whether in the context of investigation in criminal cases or otherwise. If the accused refers to undergo Narcoanalysis test and Brainmapping test can not be forced to undergo such test .

The application of Narco-Analysis test involves the fundamental question pertaining to judicial matters and also to Human Rights. The legal position of applying this technique as an investigative aid raises genuine issues like infringement of an individual's rights, liberties and freedom. With crimes going

<sup>17</sup> Satyendra K. Kaul and Mohd. H. Zaidi, Narco analysis, Brain mapping, Hypnosis and Lie Detector Test, In Interrogation of suspect 594 ( Alia Law Agency, Allahabad, 2008).

<sup>18</sup> Gautam Kundu v. State of West Bengal AIR 1993 SCR (3) 917.

<sup>19</sup> AIR 2001 SC 2226

<sup>20</sup> Date of decision: 27th April, 2012

<sup>21</sup> 2017 CriLJ 4365.

<sup>22</sup> Decided on 7 December, 2017.

<sup>23</sup> 2017 CriLJ 1854.

<sup>24</sup> 2011 CriLJ 4274(SC).

<sup>25</sup> 2017 CriLJ 3357

hi-tech and criminals becoming highly trained professionals, the use of Narco-Analysis by the investigating officials can be very useful, because whereas the conscious mind does not speak out the truth, unconscious may reveal the information, which could provide vital lead in. However, defense lawyers and human rights activists viewed that Narco-Analysis test was a very primitive form of investigation and third degree treatment, and there were legal lapses in interrogation with the aid of drugs.<sup>26</sup>

It is true in Narcoanalysis test, nothing is extracted from the body of the accused, nor is anything compared nor tallied since what is obtained is statement or information given by the accused will be either exculpatory or inculpatory and it is inculpatory statement which is hit by Article 20(3) of the Constitution. Whether the accused make inculpatory or exculpatory statement will be known only after the test is conducted and not before that. So it is premature to say the nature of the statement or information, which the accused give under Narcoanalysis Test.<sup>27</sup>

In 2006 in judgment of *Dinesh Dalmia v State*<sup>28</sup>, it was held by the Madras High Court that subjecting an accused to Narco-Analysis is not tantamount to testimony by compulsion. The court supposed about the accused: "he may be taken to the laboratory for such tests against his will, but the revelation during such tests is quite voluntary." In this case 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. It is extremely clear from the above discussion 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. Therefore, there is no reason to make illegal such a test on basis of unconstitutionality.

In January 24th, 2008, a bench of Chief Justice K.G. Balakrishnan reserved its ruling after hearing arguments for three days from various parties, including Solicitor General Goolam E. Vahanvati and senior advocate Dushyant Dave, appointed by the bench as amicus curiae to assist the court in the case. Telgi and his accomplices are facing probe by various states' police and other investigative agencies for their alleged criminal acts. These accused people have challenged the legality of the use Polygraph, Brain Mapping and Narco-Analysis by the investigative agencies to probe the crime.

In the case of *State of Bombay v. Kathi kalu Oghad*<sup>29</sup>, the court observed that conducting the Polygraph by the police without the consent of accused person is violation of article 20(3) of the Indian Constitution. The right against forced self-incrimination is enshrined in Article 20(3) of the Indian Constitution as well as in the Criminal Procedure Code. In this case the Bombay High Court had to decide whether compelling the accused person to undergo this test would violate their right to silence and compel him to provide evidence against himself. In this case Palshikar j. held that the right against self-incrimination applies only to court proceeding and not to police interrogation.

In case of *M.P. Sharma v. Satish Chandra*<sup>30</sup>, the Supreme Court has measured the principle underlying Article 20 (3) of the Indian Constitution, which says that no person accused of any offence shall be compelled to be a witness against himself. In this case it was contented before the court that that guarantee under Article 20(3) of the Constitution against testimonial compulsion is confined only to oral evidence of a person standing his trial for an offence when he is called to the witness stand. The Supreme Court has said by rejecting this contention that there is no reason to confine the content of the Constitution guarantee to its barely literal import, and therefore, to limit it would be to rob the guarantee of its substantial purpose and to miss the substance for the sound as stated in American decision. After saying this, the Supreme Court has made the following observation:

"To be a witness is nothing more than to furnish evidence and such evidence can be furnished though the lips or by production of a thing or of a document or in other modes".

<sup>26</sup> Narcoanalysis test and violation of human rights and constitutional rights available on <http://www.lawyersclubindia.com/articles/-> (visited on 24-06-2013)

<sup>27</sup> Malak Batt, "Loss of justice for sake of convenience ?Narcoanalysis and Brain mapping :An examination in light of Article 20(3)" 115CriLJ 203(2009)

<sup>28</sup> AIR 2006 Sc

<sup>29</sup> AIR 1961 SC 1808.

<sup>30</sup> AIR 1954 SC 300.

These observation shows that a person can be a witness and can provide evidence against himself by different varieties of modes. One method would be to appear for medical examination and, thus, to enable the prosecution to some evidence against him.

In *Ram Jawayya Kupar's case*<sup>31</sup> it was held by the court that in absence of any law any infringement in fundamental right must be struck down as unconstitutional Lie detection test comes under the general power of investigation (section 160-167, Cr.P.C) But it must be realised that it is a choice of the person to allow himself/herself to be put to Polygraph test or not and it should not be left to the discretion police. Except it is allowed by the law it must be seen as illegal and unconstitutional. But if this test is conducted by the investigating authority, it must be conduct with the free consent of the person. Free consent means that it is chosen and is not given under coercive circumstances for example if a person says that “ I wish to take a Lie Detector test because i wish to clear my name” it shows that he want to undergo with Polygraph test but it is still to be shown that whether this voluntariness under coercive circumstances. If a police officer told to a person “take a Lie Detector test and we will let you go”, it shows that the police officer has linked up the freedom to go with the Lie Detector test and as such it cannot be held voluntary. These kinds of statement are held to be self-incriminatory.

In case of *Nandini sathpathi v P.L.Dani*<sup>32</sup>, the (a former Chief Minister of Orissa) has made complaint that she was being prosecuted for her refusal to answer police question about a corruption case lodged against her. She that she cannot compel to give answer of the question asked by the police officer as she has right against self-incrimination under Article 20(3) of Indian Constitution and she has also protected under section 161(2) of Cr.P.C. In such circumstances it depend upon the nature corruption .if the lady has committed simple mistake or not a heavy corruption then its ok otherwise she may compel to undergo the Lie Detector test. There must be Article 20(3) but there is loss in using Lie Detector test depending upon the gravity of facts of the cases.

In *Ramchandra Reddy v. State of Maharashtra*<sup>33</sup>, It was held by the court that “The Lie Detector test is an examination which is conducted by various probe attached to the body of the person who is interrogated by the Expert. In this test the heart rate, the skin conductance is measured. The underlying theory of this test is that when people lie they become nervous. The heart beat increases, blood pressure goes up, breathing rhythm changes, perspiration increases, etc. A baseline for this physiological characteristic is established by asking the subject questions whose answers investigators know. Deviation from the baseline for truthfulness is taken as a sign of lie. Consequently, there is no direct incursion of the body. In this test the Polygraph is taken which gives this reaction and an expert would then explain these reactions in the Court which would be his reading of the Polygraph from which would flow this conclusion which are to be admitted or not admitted by a judge on appreciation of the statement and the objections raised thereto. In this case the witness may answers or may not answers the questions. The response of his answers to questions as recorded on the Polygraph analysis of which is required to be tendered as evidence if and when the occasion arises.”

In *D.K. Basu v. State of West Bengal*<sup>34</sup>, the Honn'ble court has emphasised on the importance of the preventing the cruel, inhuman, degrading treatment while a person is taken into custody. In the present context involuntary and forcibility administration of any of the tree scientific techniques like Narco-Analysis test, Polygraph test and Brain Mapping in a forensic laboratory or in a hospital, physically confining the subject will fulfill the requirement of custodial environment and thus will attract the provision under Article 20(3) and Article 21 of the Constitution. This is applicable not only for the accused, suspect, witness but also for investigation who questioned in the of investigation without being brought in the record as witness. It is clear that each of the three of the tree scientific techniques causes the subject to lose his control over his responses. It is clear from the language of the Article 20(3) and Article 21 of the Constitution that the involuntary administration of the above three scientific techniques will amount to cruel, inhuman and degrading treatment in the context of Article 21.<sup>35</sup>

<sup>31</sup> 1955 (2) SCR 225.

<sup>32</sup> AIR 1978 SC 1025.

<sup>33</sup> 2005 (1) CCR 335 (DB).

<sup>34</sup> AIR 1997 SC 610.

<sup>35</sup> Supra 1, 110.

In the case of *Jitubhai Patel v. State of Gujarat*<sup>36</sup>, since the state had filed affidavit that it shall not conduct the test on the accused person without his consent the issue of admissibility of scientific evidence becomes academic only. It may be decided at some different occasions. In this case it was held that scientific tests such as Polygraph test, Narco-Analysis test can be conducted without taking the consent of the accused person. It should be kept in the mind that there has been great scientific advances and there is subtle difference between old test methods of blood testing or fingerprinting and Polygraph and Narco-Analysis test. Old tests were of the nature of physical tests, but the new scientific tests are something more than physical tests. A general opinion is being formed that these tests should be applied not only to ordinary criminal but even to VVIPs. If these scientific methods are not encouraged then use of third degree methods would be encouraged tests.

In case of *Selvi v. State of Karnataka*<sup>37</sup>, it was held by the supreme court that scientific tests like Narco-Analysis test, Polygraph test and Brain Electrical Activation Profile (BEAP) test cannot be conducted on the accused person without taking the consent from the accused person if such tests are conducted without taking consent from the accused person it would be violative to Article 20(2) of the Indian constitution.

### Conclusion

As it is clear by the present time position that methods for commission of crimes has been changed by alternation of the circumstances. The old techniques of crime investigation have become obsolete. They are not so effective in detecting the crime as well as criminals. At present the significance and relevancy of the scientific evidence has increased because they are proving very helpful in solving criminal as well as civil cases. In the past, in many judgments the various high court and Supreme Court had given direction for conducting these tests. But there is also doubt about hundred percent accuracy of these test because there is great need for taking precautions for conducting these tests. The finding may be wrong by any error on the part of the conducting these test by the investigating agencies. Tempering with the scientific evidence may change the result.

The government has set the path for creating a DNA bank storing citizen's profiles, as the Union Cabinet cleared a bill for the regulation and use of DNA for policing. The bill is meant to regulate the use of DNA for criminal investigation and justice delivery, and has provisions for the storage of genetic information. The DNA Technology (Use and Application) Regulation Bill 2018 was passed in a cabinet meeting, chaired by Prime Minister Narendra Modi, and seeks to expand the use of DNA to help solve crimes, identify missing persons, and determine biological relationships between people. It will be introduced in Parliament during the Monsoon Session beginning July 18.<sup>38</sup>

<sup>36</sup> 2005 (10) SCC 545.

<sup>37</sup> AIT 2010 SC 1974.

<sup>38</sup> Government Gives Nod To Bill For Building DNA Databases In India, For 'Criminal Investigation And Justice Delivery' available at <https://www.forensicconnect.com/author/forensicconnect/> (visited on date 07/07/2018).