

ROLE OF FORENSIC SCIENCE IN REVEALING THE INSIDER INFORMATION OF ACCUSED: METHODS AND THEIR LEGALITY

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INTRODUCTION

Forensic science, which has gained much fame these days for contributing to the ends of justice, is the application of various branches of science like medicine, chemistry, microbiology, odontology, physiology etc. in the resolution and determination of complicated disputes of the legal nature, which posed mysterious puzzle before the investigators of crime and the Court of Law. Neither the codified laws nor the customary general laws can ensure the justice if concerned actors failed to provide accurate evidence before the Courts. And providing that evidence which is accurate, exact and beyond reasonable doubt is not an easy job in any manner in each and every case, even for those whom have expertise in the field of law.

Forensic Science is invaluable in this context because it has the potential to provide reliable, pertinent, accurate and often definitive information in the form of evidence about a given case to the investigators and the courts. Furthermore, the information that it supplies frequently cannot be obtained by other means. Science can be used to identify individuals, objects and substances. Importantly, it can provide evidence of contact between an individual and the items or people that he or she has encountered. It may also reveal other types of information that could be pivotal in a given case, such as the amounts or concentrations of particular substances present in a given sample, or details about the timing or sequence of events that occurred during an incident¹. The role of the forensic scientist is to provide the justice system with impartial, scientifically rigorous information. Such information can be crucial in establishing whether a crime has been committed and, if so, by whom. It can be used, for example, to test eyewitness

¹ . Andrew R.W.Jackson, Julie M.Jackson, Forensic Science, xxii (Pearson, London, 2011)

accounts of the events that occurred during a particular incident, or to provide the investigating authorities with new leads or intelligence information.

Though, there are numerous methods in the forensic science for detecting a crime and unearthing a truth, but Narco-Analysis Test, Polygraph or Lie Detector Test and Brain-Mapping Test, (which are also called Deception Detection Tests or DDT) are some of the most important tools in bringing out the inner or personal knowledge of a culprit, which can play a crucial role in any criminal inquiries and investigations. This article is confined to only these tests and hereinafter, a brief glimpse upon these methods is given underneath.

Narco-Analysis Test:

Narco-analysis is a form of psychotherapy and an effective aid to scientific interrogation of an accused person. It is a process whereby a subject is put to sleep, or into a state of semi-consciousness by means of dosage of medical drugs and then interrogated while in a reverie² or in the state of semi-consciousness. The term Narco-analysis is derived from a Greek word “narke” which means anaesthesia and is used to describe a technique of diagnosing and giving the psychotherapy with the help of psychotropic drugs as Central Nervous System.

Now a Day, Narco-analysis has become one of the most popular techniques of crime detection not only in India but all around the world. It is a kind of psychotherapy which is conducted on a person by using a sort of inducement by bringing that person into semi-sleep with the help of certain medicinal drugs. The logic behind this test is that human man has the habit and tendency of speaking lies from the time immemorial, in order to conceal that information which he does not want to disclose and a person can only be able to lie by using his mind’s eye. In this test, the subject’s self-consciousness is allowed to sink down by making intrusion to his nervous system. In such a state of semi-consciousness an attempt is made by the investigators to extract information in form of clues about the crime, of which he is suspect, as under the influence of drugs it becomes extremely difficult for that person to lie because he became incapable to concoct a story or fabrication.

It is believed that if a person’s way of thinking can be restrained without exerting any effect on his already acquired memory then he would speak freely without any manipulations under the

² . Nayan Joshi, “Medical Jurisprudence and Toxicology”, 267 (Kamal Publishers, New Delhi, 2008).

influence of drugs Some drugs have been found to create this ‘twilight state’ in some persons and with the use of these drugs investigating agencies try to arrive at the truth. As already discussed that the term Narco-analysis is derived from a Greek word “narke” which means anesthesia and is used to describe a technique of diagnosing and giving the psychotherapy with the help of psychotropic drugs as Central Nervous System depressants and by virtue of this they produce a wide spectrum of effects³. In modern medical examination under this Test there are two most common vital drugs generally used to bring into play the Narco-analysis and these are Sodium amytal, which is also known as amobarbital or amylobarbitone, and Sodium Pentothal commonly known as thiopental or thiopentone, is used by medical investigator or psychiatrist on the person suspect of crime. Its effect is that it makes such suspected person under dizziness or extreme tiredness and, consequently, he or she becomes susceptible to questions as he failed to invent a false story or depiction of facts. Such suspected person becomes communicative and can easily compel to reveal the truth. It is said that after the administration of such medical drugs⁴ the suspected person on whom the test was conducted loses inhibitions but does not lose his or her self-control.

Narco analysis may be used in following purposes—

- For Medical purposes—Narco analysis has been used in mental health cases for diagnosing habilitment. In medical field Narco analysis is used—
 1. for restoring speech to mute persons
 2. in case of amnesia, for reviving memory, and
 3. for expression of suppressed or repressed thought or conflict
- In criminal investigation.—As mentioned earlier, Narco analysis is now being used in forensic field also and in criminal justice system it is used for investigation purposes. However, Narco analysis test should be used only in the cases where large interest of society is involved. Narco analysis is usually used in cases of terrorism, crimes that are well organised, serial killings, in cases where no evidence is available etc.

There are two categories of -suspects who undergo Narco analysis test:

1. Where suspect willingly volunteers and co-operates with the interrogator.

³ . Caesar Roy, “Narco Analysis Test- Infringement of Individual Fundamental Rights and Its Value as Evidence”, Criminal Law Journal, March 2009 p 69.

⁴ . Such as sodium pentothal, scopolamine and sodium amytal

2. Where suspect is forced to change the test under court orders.

The advantage of Narco analysis is that this technique is helpful in saving the innocents from prosecution and eliminating the use of third degree method. In addition it has been used as a time saving device in criminal cases with the help of Narco analysis by a trained and skilled psychiatrist.

However, certain issues are also attached with Narco-Analysis Test which raised a question mark upon its relevancy. First, many says it is not hundred percent effective and accurate⁵. Second, conducting this test upon accused without his consent would amount to torture and harassment.

Narco-analysis “without consent” raises certain issues such as (i) a physical assault on the body by giving injections and also multiple painful stimuli such as slapping, pinching, pushing, hitting, shaking the body and so forth to wake a person from hypnotic state to answer the questions, and (ii) mental assault through the effect of the injection on his or her mind and also an unrestricted access to the utmost privacy, the privacy of his or her own mind⁶. In the era of evidence-based medicine, it does not have any significant role in the treatment of any psychiatric conditions. Though this technique is known since the Second World War⁷, it has not been supported with adequate research to justify its claim.

Third, In Narco-Analysis by using false tricks certain suspects made totally false statements. If the suspected person on whom Narco-Analysis is conducted, has been a drug addict or alcoholic his or her tolerance level will be high and he or she may make false statement under false semi-consciousness and can easily blunt the objectives of such investigation. Fourth, it is very difficult to suggest an exact dosage of drug for a particular individual as it will vary from person to person depending upon the mental attitude and physical structure of the suspected person on whom such test is to be conducted.

Polygraph Test:

⁵ . SriramLakshman, “We Need to Talk AboutNarco-Analysis”, The Hindu Ed Chandigarh, May, 02 2007.

⁶ . Suresh Bada Math, “Supreme Court judgment on Polygraph, Narco-Analysis & Brain-Mapping: A Boon or a Bane” Indian Journal of Medical Research, 134(1) July, 2011, pp.4-7

⁷ . HNaples, T Hackett, “The **Amytal**Interview: History and CurrentUses.”Psychosomatics. 19(2) February, 1998:pp.98-105

Polygraph test is another important scientific method of investigation as truth finder. Polygraph is also known as lie detector test and sometimes referred to as psycho-physiological detection. The polygraph is an instrument that records certain physiological changes in a person's body going through the questions in an effort to get hold of the truth or deception⁸

It is an instrument, a scientific device which measures and records physiological actions of human body as for instance blood-pressure of the suspected person, his pulse rate, respiratory system, skin conductivity while the suspected person is asked questions relating to the crime and he answers them. The polygraph tests measures all the natural changes caused by autonomic nervous system during questioning. The autonomic nervous system changes are beyond reasonable control of an individual and hence autonomic nervous system response changes transpire when the suspected person tries to tell a lie.

The theory behind polygraph tests is that a guilty subject is more likely to be concerned with lying about the relevant facts about the crime, which in turn produces a hyper-arousal state which is picked up by a person trained in reading polygraph results. Measurement of hyper-arousal state is based and determined on a number of standard parameters such as heart rate, blood pressure, respiratory rate, skin conductance and electromyography of human body. But the principle behind these tests is questionable because the measured changes in arousal state are not necessarily triggered by lying or deception. Instead, these could be triggered by nervousness, anxiety, fear, confusion, hypoglycaemia, psychosis, depression, substance induced (nicotine, stimulants), substance withdrawal state (alcohol withdrawal) or other emotions. This state has also been attributed to the way the questions are asked by the investigating officers⁹.

However, relevancy of Polygraph Test is always in question not only in India but also in United States of America where it was rejected by the Circuit Court in the famous case of *Frye v. United States*¹⁰ because in the opinion of court it is uncertain and its accuracy is questionable.

⁸ . Bhargava Mitra, "The Lie Detector, Its Validity as Scientific Evidence and Its Legal Status in U.S. and India", Cr. L.J. (2005) journal p. 185.

⁹ . *Supra* note 6.

¹⁰. *Frye v. United States* 293 F.1013 (D.C. Cir. 1923)

Moreover, it is not difficult to beat polygraph tests by a trained person, who is able to control or suppress his arousal symptoms through relaxation exercises, Yoga, meditation, *etc.* Hence, the reliability of the polygraph test has been repeatedly questioned in empirical studies¹¹.

Brain-Mapping Test:

It measures the changes in the electrical field potentials produced by the sum of the neuronal activity in the brain by means of electrodes placed on the surface of the skin covering the head and face. The changes directly related to specific perceptual or cognitive events are called event-related potentials¹². In simple words, it is based on the finding that the brain generates a unique brain-wave pattern when a person encounters a familiar stimulus¹³. Commonly used method in India is called as Brain Electrical Activation Profile test, also known as the ‘P300 Waves test’.

Brain Mapping is one more valuable scientific tool for investigation of crimes. It is a component of averaged brain potentials. In this test no questions are asked from the accused. He is made to sit in evoked potential recording machine and is shown objects relating to crime scene or is made to hear sounds pertaining to crime site. The sensors from his head pick the event related potentials in the form of Brain Mapping only if the person has been at the site of crime.

Brain Mapping is a response of the brain to a stimulus which is shown to the subject. It is very robust Event Related Potential. As soon as it recognizes the stimuli it sends the reaction within 300 milliseconds of seeing the stimuli. If the person is attentive to the stimuli its response would be the fastest. If more time is taken for making decision the more time is spent for the responses of P300. Its latency shows the amount taken by it in arriving at a decision.

When the brain recognizes a person or a sound, it produces a precise electric wave which is called P300¹⁴. In this test sensors are attached to the head of the subject and the subject is seated before a computerized monitor. The sensors catch the electrical activity in the brain and record

¹¹ . Supra note 6.

¹² .C.D. Lefebvre, Y. Marchand, S.M. Smith, J.F. Connolly, “Use of Event-Related Brain Potentials (ERPs) to Assess Eyewitness Accuracy and Deception”. *International Journal of Psychophysiology* 73(3)2009, pp.218–225

¹³ . P.S. Appelbaum, “Law & Psychiatry: The New Lie Detectors: Neuroscience, Deception, and the Courts”. *Psychiatric Service, Washington, D.C.*;58(4), April 2007:pp.460–462

¹⁴ . Bimaldeep Singh, “Scientific Techniques of Obtaining Evidence”, *Law Journal of Guru Nanak Dev University*, Vol. XVII p 92.

P300 wave, which is produced only if the subject has some correlation with the pictures shown to him and the sounds which he is made to hear.

LEGALITY OF NARCO-ANALYSIS, POLYGRAPH AND BRAIN-MAPPING IN INDIA

However, the conflicting scenario arising out of the Deception Detection Techniques is its legality of using these so called inhuman degrading methods like Narco-Analysis and Polygraph upon a human beings to confess the commission of a crime. The interrogation of the accused person plays a vital role in collecting relevant evidence, which can be crucial in proving his guilt. It is a pertinent question before the jurists that if the accused remains silent and does not answer any questions of the investigating agencies then to what extent the investigating agencies can coerce or force the accused to reveal information. In a civilized world any form of torture employed by the State agencies is unacceptable to extract information about the crime. Even in the court of law, confession made to a police officer is not valid. Now, the question is, "Can police use Deception Detection Techniques to extract information from the accused"? There are many who support the view that in this age of ever increasing crime rate, such tests often help to the investigating agencies but others rejecting it as a clear violation of constitutional provisions. This viewpoint looks into the earlier court's view, recent Supreme Court judgment and scientific basis of Deception Detection Techniques.

Supreme Court of India has evaluated all the above-mentioned Scientific methods and Techniques on the parameters of Constitution of India, 1950 in the landmark case of *Smt.Selvi v. State of Karnataka*¹⁵ and raised the serious doubts about the reliability and constitutionality of the same. Article 20(3) of the Constitution of India forbids the State from compelling any person to give evidence against himself¹⁶. The Apex Court has also examined its earlier judgments in several leading cases. In *M.P. Sharma v. Satish Chandra*¹⁷ it was held by Hon'ble Justice Jagannadhadas, that:

¹⁵ .*Smt. Selvi v. State of Karnataka*(2010) 7 S.C.C. 263

¹⁶ . Constitution of India, 1950; Article 20(3) provides that "No person accused of any offence shall be compelled to be a witness against himself."

¹⁷ . *M.P. Sharma v. Satish Chandra*[1954] SCR 1077

"Broadly stated, the guarantee in Article 20(3) is against 'testimonial compulsion'. It is suggested that this is confined to the oral evidence of a person standing his trial for an offence when called to the witness-stand. We can see no reason to confine the content of the constitutional guarantee to this barely literal import. So to limit it would be to rob the guarantee of its substantial purpose and to miss the substance for the sound as stated in certain American decisions. ...¹⁸"

However, in another milestone judgment in the case of *State*¹⁹, as the minority opinion, Hon'ble Justice Das Gupta, affirmed the same position:

"... If the protection was intended to be confined to being a witness in Court then really it would have been an idle protection. It would be completely defeated by compelling a person to give all the evidence outside court and then, having what he was so compelled to do proved in court through other witnesses. An interpretation which so completely defeats the constitutional guarantee cannot, of course, be correct. The contention that the protection afforded by Article 20(3) is limited to the stage of trial must therefore be rejected."²⁰

And later in *Nandini Satpathy v. P.L. Dani*²¹, the above minority view was accepted by the majority which give the broadest interpretation to the Article 20(3) in the following words:

"... Any giving of evidence, any furnishing of information, if likely to have an incriminating impact, answers the description of being a witness against oneself. Not being limited to the forensic stage by express words in Article 20(3), we have to construe the expression to apply to every stage where furnishing of information and collection of materials takes place. That is to say, even the investigation at the police level is embraced by Article 20(3)".

Court, through Hon'ble Justice V.R. Krishna Iyer, further observed:

"If the police can interrogate to the point of self-accusation, the subsequent exclusion of that evidence at the trial hardly helps because the harm has already been done. The police

¹⁸ . *Ibid*, pp. 1087-1088:

¹⁹ . *State of Bombay v. Kathi Kalu Oghad & Others*, [1962] 3 SCR 10

²⁰ . *Ibid*, at p.40.

²¹ . *Nandini Satpathy v. P.L. Dani*, (1978) 2 SCC 424

will prove through other evidence what they have procured through forced confession. So it is that the foresight of the framers has pre-empted self- incrimination at the incipient stages by not expressly restricting it to the trial stage in court. True, compelled testimony previously obtained is excluded. But the preventive blow falls also on pre-court testimonial compulsion. The condition, as the decisions now go, is that the person compelled must be an accused. Both precedent procurement and subsequent exhibition of self-incriminating testimony are obviated by intelligent constitutional anticipation.²²"

It is to be noted that any forced insider or internal information from the accused person which is forcefully extracted by the investigators from him, is also prohibited under the various provisions of Indian Evidence Act, 1872²³. Therefore, relying upon Article 20(3) of the Constitution of India, 1950 and the Section 24 of Indian Evidence Act, 1872, the Apex Court in *Smt. Selvi v. State of Karnataka*²⁴ declared the Narco-Analysis Test unconstitutional and invalid in the following words:

“It is quite evident that the Narco-Analysis technique involves a testimonial act. A subject is encouraged to speak in a drug-induced state, and there is no reason why such an act should be treated any differently from verbal answers during an ordinary interrogation. In one of the impugned judgments, the compulsory administration of the Narco-Analysis technique was defended on the ground that at the time of conducting the test, it is not known whether the results will eventually prove to be inculpatory or exculpatory. We have already rejected this reasoning. We see no other obstruction to the proposition that the compulsory administration of the Narco-Analysis technique amounts to ‘testimonial compulsion’ and thereby triggers the protection of Article 20(3)”²⁵.

Similarly, in the same case, the Court also declared Polygraph Test and Brain-Mapping Test violative of Article 20(3) and hence unconstitutional because they also compel a person to

²² . *Ibid*, at p. 449.

²³ . Indian Evidence Act, 1872; Section 24 runs as “Confession caused by inducement, threat or promise, when irrelevant in criminal proceeding. - A confession made by an accused person is irrelevant in a criminal proceeding, if the making of the confession appears to the Court to have been caused by any inducement, threat or promise, having reference to the charge against the accused person, proceeding from a person in authority and sufficient, in the opinion of the Court, to give the accused person grounds, which would appear to him reasonable, for supposing that by making it he would gain any advantage or avoid any evil of a temporal nature in reference to the proceedings against him.

²⁴ . *Supra* note 15.

²⁵ . *Ibid*, at para 130.

reveal out inner or personal or insider information. The Court held that “Even though the actual process of undergoing a polygraph examination or a BEAP²⁶ test is not the same as that of making an oral or written statement, the consequences are similar. By making inferences from the results of these tests, the examiner is able to derive knowledge from the subject's mind which otherwise would not have become available to the investigators. These two tests are different from medical examination and the analysis of bodily substances such as blood, semen and hair samples, since the test subject's physiological responses are directly correlated to mental faculties. Through lie-detection or gauging a subject's familiarity with the stimuli, personal knowledge is conveyed in respect of a relevant fact. It is also significant that unlike the case of documents, the investigators cannot possibly have any prior knowledge of the test subject's thoughts and memories, either in the actual or constructive sense. Therefore, even if a highly-strained analogy were to be made between the results obtained from the impugned tests and the production of documents, the weight of precedents leans towards restrictions on the extraction of ‘personal knowledge’ through such means”²⁷.

CONCLUSION

Nobody can deny the relevancy of forensic science techniques and methods as long as their accuracy and reliability is unquestionable. But it is not as simple as it looks from a distance because no technique or method in the world can be hundred percent accurate and chances of errors shall always be there. However, Scientific methods like Narco-Analysis Test, Polygraph Test and Brain-Mapping Test are utilized for getting the inner personal knowledge or information of an accused person, which in the absence of prohibitive provisions of the law or in the presence of positive permissible provisions of the law can be of immense importance and play an important role in speedy disposal of cases and ensuring the justice to the victims of crime or accused. Unfortunately, in India, Constitution prohibits extraction of such vital inner personal knowledge or information of an accused person who is suspected of committing of a crime by using any method whether physical torture or scientific methods. Lastly, it is recommended that such tests should be allowed by the Court in the offences of Terrorism and Crimes against Society and Sovereignty of State, so that Forensic Scientific methods and

²⁶ . BEAP stands for Brain Electrical Activation Profile

²⁷ . *Supra* note 15, at para 160.

techniques can be used for saving the humanity from scourge of heinous crimes and accused persons can be brought to justice.

