DNA TECHNOLOGY AND ITS IMPACT ON LAW

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1. Introduction

The focus of all criminal investigations is to link evidence from the crime scene to suspects, and for more than a century, science has played an increasingly important role in this process in presenting a fool proof case as neither such evidences can be fabricated nor can be denied. Fingerprinting was applied to criminal investigations, beginning in the 1880's. Shortly after, the principle of ABO blood typing was reported in 1900 and soon its relevance to forensic investigations became apparent. In the 1960's human leukocyte antigen (HLA) typing became the premier serologic tool for personal identification, although in practice, it was useful for only small percentage of samples. Finally, the 1980's ushered in the age of NDA testing, which permits investigators to perform almost unbelievable feats of identification. With current techniques, it is possible for a single person to be differentiated from all the people that have ever lived using DNA from a single hair root.[1]

The purpose of the present paper is to highlight the importance of DNA evidence in crime detection as well as in sorting out grave issues such as paternity claims, establishing identity from mutilated remains and so on. The paper also seeks to emphasis the fact that the conclusiveness of DNA tests makes it imperative that such evidence be incorporated formally in our legal system besides making provisions for standardization of testing, training of experts and quality controls.

2. What is DNA?

In simple terms, DNA, or 'Deoxyribo Nucleic Acid' is material that governs inheritance of eye color, hair color, stature, bone density and many other human and animal traits. DNA is a long, but narrow string-like object. Each of our body's cells contains a complete sample of our DNA. There are muscle cells, brain cells, liver cells, blood cells, sperm cells and others. Basically, every part of the body is made up of these tiny cells and each contains a sample or complement of DNA identical to that of every other cell within a given person. There are a few exceptions. For example, our red blood cells lack DNA. Blood itself can be typed because of the DNA contained in our whit blood cells. Moreover, not only does the human body rely on DNA but so do

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1. http:// arbl.cymbs.colostate.edu. Visited on 7/2/2006.

most loving things including plants, animal and bacteria.[2]

Sir Alec J.Jefferys discovered the use of DNA for forensic analysis in 1984. The structure of DNA is different in every individual and except identical twins, no two individuals can have identical DNA. Variation in human DNA is known as 'polymorphism'. It is these polymorphic segments in the DNA molecule, which serve as a tool to identify individuals. DNA in one sense is an individual's Genetic Code', the blue print which makes you what you are.[3]

DNA is found in blood and blood stains, semen and semen stains, saliva, hair and hair roots, tooth canal toot pulp, finger nail pairings, skin cells, perspiration, brain cells, mucus, bone and bone marrow, urine as well as other body fluids. Further, it is a fairly stable compound and can be obtained from as old as 5 years old semen stains and 4 years old blood stains. The biggest advantages of this technique is its ability to analyse small and environmentally exposed samples to establish their origin with high degree of certainty. Due to the advent of amplification of material clues through cell generation technology- Polymerase Chain Reaction, the quantity required for test has further lessened. The other advantage of DNA profiling is that contamination of evidentiary clues does not prevent its identification.

DNA evidence can be used to establish percentage, identify mutilated remains; establish biological relationships for immigration, organ transplant and property inheritance cases; identify missing children and child swapping in hospitals, identify species in wildlife poaching cases and also identifying and authenticating seed/plant varieties.

3. DNA Profiling

The complete analysis of DNA is known as 'DNA Profiling' or 'DNA typing'. DNA Profiling is essentially a biological tool that allows the scientist to compare samples of DNA material. As mentioned above, with the exception of identical twins, the DNA of every individual is different and unique and this is what makes DNA profiling such an invaluable tool in investigative procedures. DNA analysis reveals the genetic profile of a person and when this is compared with the samples obtained from scene of crime or in case of proving paternity, with the sample of the other person, it provides a conclusive proof of connection or relation.

2. www.scientific.org Visited on 7/2/2006.
3. J.K. Mason and McCall Smith, "Medico-legal Encyclopedia", Butterworths, London, 1995, p. 16.

4. Instances of use of DNA Evidence

i) DNA evidence was used to establish the identity of persons who died in the 9/11 attacks in the United State of America.

ii) Similarly DNA identification was made use of to determine the percentage of children separated from their parents during the tsunami in December 2004.

iii) It was used to identify bodies recovered from mass graves in Gujarat, after the Hindu-Muslim riots in 2002.

iv) DNA test was done by the American government in order to ensure that the man arrested by the American army from his underground abode was indeed, Saddam Hussain.

v) DNA evidence is increasingly and successfully being used to identify culprits in sexual assault cases.

vi) In the Rajiv Gandhi Assasination case, the DNA samples of the alleged assassin Dhanu, were used to provide a conclusive proof of her involvement in the crime. Likewise, the assassin of Late Chief Minister, Beant Singh was identified.

vii) In the United States, DNA evidence obtained from Monica Lewinsky's dress proved Bill Clinton's involvement with her.

viii) DNA technology was used to resolve famous cases like the Naina Sahni case, Madhumita Shukla murder case, Shivani Bhatnagar case and the Priyadarsini Matto case.

These are merely some instances of the importance of DNA technology and DNA evidence is increasingly being used in various kinds of investigations, particularly in crime detection. So much has been the magnitude of the success of DNA profiling that even International Crime Prevention and Detection Organisations such as the Interpol, have come to accept the value of DNA and are whole-heartedly supporting this new crime investigation tool.[4]

5. DNA Evidence and paternity Issues in India

DNA tests can provide a conclusive evidence of paternity. The technique is called 'finger printing'. The essential difference between conventional blood tests and DNA finger printing lies in the extremely polarized possibility. It a man

4. Gurjeet Singh, "DNA Profiling: Its Impact and Application on Law", Souvenir of the Two Days National Seminar on DNA Test and the Law: New Dimensions, SLS Students Council, Jalandhar, 27-28 March 2004, p. 13.

is not the father of the child the odds of failing to get exclusion in such a case are roughly, 30,000 million to one. If the man matifies the child in blood group, even then the odds that he is not the father are of a similar magnitude. The probabilities are of such an astronomical scale that they reduced the result to an absolute certainty.[5]

Notwithstainding, the useful ness of this technique it is doubtful, whether DNA finger printing can be used to establish paternity with respect to section 112 of The Indian Evidence Act, 1872. Section 112 days down that 'the fact that any person was born during the continuance of a valid marriage between his mother and any man, and within two hundred and eighty days after its dissolution, the mother remaining unmarried, shall be a 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 the time when it could have been begotten.'

This rule is based on the fact that the courts always lean in favour upholding the legitimacy of the child. Corts have always desisted from lightly or hastily rendering a verdict that too, on the basis of slender material which will have the effect of branding a child as a bastard and his mother as an unchaste woman.[6]

In view of the provision section 112 of The Indian Evidence Act, there is no scope of permitting the husband to avail of blood test for dislodging the presumption of legitimacy and paternity arising out of this section.[7] Blood group test to determine the paternity of a child born during wedlock is not permissible.[8]

The Hon'ble Supreme Court in *Gautam Kundu v. State of West Bengal*[9] laid down the following guidelines regarding permissibility of blood tests to prove paternity:

(1) That the courts in India cannot order blood tests as a matter of course.

(2) Whenever applications made for such prayers in order to have roving inquiry, the prayer for blood test cannot be entertained.

(3) There must be a strong prime facie case in that the husband must establish non-access in order to dispel the presumption arising under section 112 of the Evidence Act.

5. Ratan Lal and Dhiraj Lal, "The Law of Evidence", Wadhwa and Company, Nagpur, 2002, p.960
6. *Smt. Dukhtar Jahan v. Mohammed Farooq*, AIR 1987 SC 1049.
7. *Goutam Kundu v. Shaswati Kundu*, Criminal Revision No: 800/92 (Cal).
8. *Tushar Roy v. Shukla Roy*, 1993 Cri. L.J 1659 (Cal).
9. AIR 1993 SC 2295.

(4) The court must carefully examine as to what would be the consequences of ordering the blood test; whether it would have the effect of branding a child as a bastard and his mother as an unchaste woman.

(5) No one can be compelled to give the sample for analysis.

However medically it is quite possible that the pregnancy may last for more than 280 days. There may be instances when the husband and wife may be living together and the wife may have gone astray and conceived the child through illicit relationship. But in view of section 112 of the Evidence Act, the legal presumption is in favour of the child being legitimate and the husband has to bear fatherhood of the child. Due to the aforesaid provision contained in the Evidence Act, such anomalous situation exists in our country, although science and technology has advanced so much that it can be accurately ascertained with the help of DNA testing as to whether parties to dispute have to be given. But there is no provision in the Indian Evidence Act or the Code of Criminal Procedure, 1973 providing for direction to the part concerned to submit himself/ herself for giving blood samples for examination.[10] The court has the power to give direction to a party to give samples for examination but the said party cannot be compelled to give the sample. The Apex Court in yet another case of Smt.Kanti Devi v. Poshi Ram[11] while accepting the accuracy of the test held that the result of genuine DNA Test is said to be scientifically true but that is not enough to escape from conclusiveness of section 112 of the Indian Evidence Act. It was further observed therein that this may look hard from the point of view of the father, but in such cases the law leans in favour of the innocent child. Thus we see that there is a serious lacuna in our law and DNA evidence should be made a part of the statute book so as to conclusively and accurately prove the parentage of the child.

6. Relevance of DNA Evidence in Criminal Cases

Unlike paternity cases, the criminal courts in India have accepted DNA evidence. Although the Criminal Law is silent on DNA analysis the courts have interpreted the same in the spirit of section 53 of the Code of Criminal Procedure, 1973. The Andhra Pradesh High Court in Ananth Kumar v. Satate of Andhra Pradesh[12] has held that although there is no clear provision in the criminal procedure code for taking such blood samples, yet there is no prohibition for

10. Col. P.S.Rathore, "DNA and Criminal Justice System: Role of DNA Test in the Defence Forces.", Souvenir of the Two Days National Seminar on DNA Test and the Law: New Dimensions. SLS Students Council, Jalandhar, 27-28 March 2004, p.25.
11. AIR 2001 SC 2226.
12. 1977 Cr LJ 1797.

taking such blood samples of an accused by exercising powers under section 53 of the code. The Hon'ble Court observed that taking samples of blood and semen would come within the scope of examination of the arrested person and therefore, "examination of a person by a medical practitioner must logically take in examination by testing his blood, sputum, semen, urine etc." The court further held that section 53 provides the use of such force as is reasonably necessary for making such an examination. Therefore, it was held that whatever discomfort might be caused, when samples of blood or semen are taken from an arrested person, would be justified under the provision of sections 53 and 54 of the criminal procedure code. Further in the case of Jamshed v. State of Uttar Pradesh[13]a Division Bench of the Allahabad High Court, relying on the judgement of the supreme Court in *State of Bombay v. Kathi Kalu*[14] held that taking blood and urine test is not hit by article 20(3) of the constitution.

7. DNA Evidence and Artic 20(3)

Article 20(3) of the Indian Constitution provides that no person accused of any offence shall be compelled to be a witness against himself. This article is a guarantee against self-incrimination and aims at protecting the accused against the possible police torture during investigation. Hence, a person can remain silent if the answer to any question would tend to incriminate him. This has resulted in a debate as to whether DNA or other tests can be done on the accused. However, it is also a well settle principle of law that no one can take advantage of his own wrong. Moreover, Article 21 also speaks of a fair and reasonable procedure. So, making use of DNA technology for investigative purposes does not mean a denial of the right under article 20930 of the constitution especially when it is carried out under the supervision of the judiciary so as to ensure that the procedure is just and fair. Hence, DNA tests should be made us of as it would not only enable the investigative agencies to reach the real culprit but also ensure speedy investigation agencies to reach the real culprit but also ensure speedy investigation and trial.

As far as criminal cases are concerned right to privacy has a very limited application. When public interest or advancement of justice demands, right to privacy has to yield in favour of them. In civil cases, involving the question of maternity, paternity; secrecy should be maintained provided the right of the interested person is not undermined.[15]

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13. 1976 Cr LJ 1680.
14. AIR 1961 SC 1808.
15. Shashikant Y. Deshmukh, "DNA Technology: Its Application and Impact on law.", Souvenir of the Two Days National Seminar on DNA Test and the Law: New Dimensions. SLS Students Council, Jalandhar, 27-28 March 2004, p.66.

8. Suggestions of the Malimath Committee The Malimath Committee constituted by the Ministry of Home Affairs, Government of India on reforms of Criminal Justice System recommends that DNA expert be included in the list of experts. It also recommend that an amendment be made in criminal procedure code in the following words:

> *"Every court shall have inherent power to make such orders as may be necessary to discover truth or to give effective orders under this code or to prevent abuse of the process of the court or otherwise to secure the ends of justice."*[16]

The Malimath Committee also recommended the amendment of section 4 of the Identification of Prisoners Act, 1920 on the lines section 27 of the Prevention of Terrorism Act, 2002. Section 27 of the Prevention of Terrorism Act provides that the police officer while investigation any case can request the court of CJM or the court of the CMM, as the case may be, in writing for obtaining samples of handwriting, fingerprints, blood, saliva etc. from any accused person. And only under the direction of the corts, the samples may be taken. Thus, adequate safeguards are provided in this regard. The section also provides that is case the accused refuses to give samples, the court can derive adverse inference against him. Hence, we see that these recommendations lean towards making use of DNA evidence.

9. CONCLUSION

From the above discussion it is evident that the advancements in forensic science, particularly with respect to DNA Technology, have proved to be of tremendous help to law enforcement agencies worldwide. Many countries like the United Kingdom, Canada and the United States of America have framed specific legislation relating to DNA evidence. However, in India we have no specific law in this regard. Another obstacle in using the DNA evidence effectively is that at time its use is seen as violative of the civil liberties of individuals. This has led to a debate as to the use of this highly accurate and conclusive piece of evidence. Hence, what our country needs is a specific legislation in this respect so that DNA evidence can be effectively used in various investigations and in administration of justice.

16. Recommendations of the Malimath Committee Report on Reforms of Criminal Justice System submitted to the Ministry of Home Affairs, Government of India, 2003.

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