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FORENSIC LAW*Gajendra K Goswami**

I INTRODUCTION

FAIRNESS IN administration of justice is the hallmark of a democratic and progressive society. Quest for fair interrogation to collect admissible evidence may be as old as justice system itself and scientific and technological aids have played the magical role in criminal investigation and civil adjudication across the globe. In inquisitorial justice system, the investigating officer (IO) is made solely responsible for evidence collection to assist the court in pursuit of truth for delivery of justice. The IO interrogates, on behalf of the court, witnesses including the accused and the suspects to find out the truth. Since long, the police have been accused of adopting shortcut methods in interrogation thereby violating human rights by using coercive means to extract information. The scientific evidence brings fairness in investigation and helps in corroborating other evidence during trial.

Forensic evidence,¹ as secondary evidence, corroborates the primary evidence and helps judiciary in delivery of justice.² The judiciary since long has been placing high reliance on scientific evidence as observed in mid 16th century by Justice Saunders, “[I]f matters arise in our law which concerns others sciences or faculties, we commonly apply for the aid of that science or faculty which it concerns. This is an honourable commendable thing in our law. We approve of them and encourage them as things worthy of commendation.”³ Since 1897, India is using fingerprint

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1 Forensic or scientific evidence is a physical evidence derived from forensic analysis. Forensic science is the admixture of art and science to facilitate the process of investigation; enabling in piecing together all possible links for reconstruction of a crime scene; and with greater precision stitches crime with perpetrator to assist courts in determining the criminal liability. The scientific examination of forensic evidence adjoins missing links or strengthens a weak chain of investigation. Broadly, forensic science helps in resolving such vital issues: (i) Has the crime been committed? (ii) How and when was the crime committed? (iii) Who committed the crime?

2 Jitendra N. Bhata, “A Profile of Forensic Science” (2003) 8 SCC (*Jour*) 25.

3 *Buckly v. Rice Thomas* (1554) 1 Plowden 118.

for classification of the records of criminals.⁴ In pursuit of truth, Indian judiciary is using forensic evidences like fingerprints, post *mortem* reports by medical experts, serology, toxicology, odontology, ballistics, DNA profiling, *etc.* Recent times have witnessed a spurt in the use of modern forensic techniques for deception detection like narco-analysis, brain mapping and lie detector for helping judiciary in reaching the truth in delivery of justice.

The present survey is an analytical account of various judicial pronouncements during 2014 by the higher judiciary in India under the evolving legal trend on forensic tools and evidences while adjudicating on both civil and criminal matters. However, for better understanding, an attempt has been made to comprehend the conceptual and legal contours of forensic evidence while analyzing judicial pronouncements in this area reported during the current year. This survey discusses cases and relevant legal provisions covering major issues in forensic science such as ordering of DNA test by court, issue of consent before ordering forensic test, DNA profiling in parentage determination and deciding maintenance suits, disputes related to maternity determination, property disputes resolution by using DNA profiling, DNA in service matters, DNA evidence in criminal cases for victim identification, limitations of DNA profiling, right of accused to prove innocence and court's emphasis on capacity building for law enforcement agencies.

Since 1896, DNA has emerged as potent forensic evidence for human identification and been used in courtroom both for criminal and civil matters.⁵ The Supreme Court of the United States in *Maryland v. King*,⁶ commented upon the use of DNA technology under:

The advent of DNA technology is one of the most significant scientific advancements of our era. The full potential for use of genetic markers in medicine and science is still being explored, but the utility of DNA identification in the criminal justice system is already undisputed. Since the first use of forensic DNA analysis to catch a rapist and murderer in England in 1986, see J. Butler, *Fundamentals of Forensic DNA Typing 5* (2009) (hereinafter Butler), law enforcement, the defense bar, and the courts have acknowledged DNA testing “unparalleled ability both to exonerate the wrongly convicted and to identify the guilty. It has the potential to significantly improve both the criminal justice system and police investigation practices.”

4 Nivedita Grover and Isha Tyagi, “Development of Forensic Science and Criminal Prosecution-India”, 4 (12) *Int. J. Sc. Res. Pub.* 1-7 (2014).

5 P. Gill, Alec J. Jeffreys, D. J. Werrett, “Forensic application of DNA fingerprints”, 318 *Nature* 577-79 (1985).

6 133 S.Ct. 1958 (2013) *District Attorney's office for Third Judicial Dist. v. Osborne*, 557 U.S.52, 55 (2009).

II MAJOR ISSUES IN FORENSIC SCIENCE

Ordering the test for DNA by court

The issue of taking biological sample of the subject is a vital issue in forensic analysis since it may affect privacy or invade bodily integrity of a person resulting in compromising with the rights to life with dignity. Under some forensic techniques like narco analysis, the statements of the subject are recorded under the influence of the drug administered to them, taking them to a trans-state for allegedly recording compulsive testimony. Such statements, although not admissible in the court, still violate right against self incrimination under article 20(3) of the Constitution of India. Hence, the Supreme Court of India, in *Selvi v. State of Karnataka*⁷ (*Selvi*) has made it compulsory to get the consent of the subject prior to conducting of such forensic tests.

In *Rudresh @ Rudrachari v. State of Karnataka*,⁸ the issue was whether a court can order the conducting of scientific test like DNA as contemplated under section 53A of the Code of Criminal Procedure, 1973 (Cr. PC) or is it strictly limited to the request by a police officer not below the rank of sub-inspector to refer a case to medical practitioner to conduct DNA. The High Court of Karnataka further observed:

The primary duty Court is to ascertain truth. Thus it is not correct to say that Court or Magistrate cannot direct or order the accused for medical examination as contemplated under Section 53 and 54 of the Code. X X X

In addition to Section 73, there were two other provisions resting on the same principle, namely Section 165, Evidence Act and Section 540, The Code 1898 which between them invest the Court with a wide discretion to call and examine any one as a witness, if it is bona fide of the opinion that his examination is necessary for a just decision of the case. In passing the order which he did, the Magistrate was acting well within the bounds of this principle. X X X

As stated earlier, this amendment was brought to overcome the difficulty of the prosecuting agency to detect the serious offence of rape. This section is not ultra vires of the Constitution. Drawing of the blood sample for the purpose of civil proceedings without the consent of the party is not desirable. But drawing of the blood sample for detection of the offence of rape wherein the investigating agency has to establish its case beyond reasonable doubt cannot be termed as violative of Article 20(3) of the Constitution. The offence of rape is a very serious offence and it is an offence against the society at large. (*Halappa v. State of Karnataka*)⁹

7 (2010) 7 SCC 263.

8 2014 (3) Crimes 575 (Kant.); 2014 (4) Kar LJ 442; 2014 (4) KCCR 3405.

9 2010 Cri L J 4341.

Earlier, in *State of Delhi Administration v. Pali Ram*,¹⁰ the Supreme Court had observed:

Once a Magistrate of a case, duly forms an opinion that the assistance of an expert is essential to enable the Court to arrive at a just determination of the issue of the identity of disputed writing, the fact that this may result in the “filling of loopholes” in the prosecution case is purely a subsidiary factor which must give way to the paramount consideration of doing justice. Moreover, it could not be predicted at this stage whether the opinion of the Government Expert of questioned documents would go in favour of the prosecution or the defence. The argument raised before the High Court was thus purely speculative.

Thus, in the interest of justice, the court must have balancing approach in individual right and community right in ordering a forensic test. The law under section 53 Cr PC empowers the criminal courts to use reasonably necessary force to conduct forensic examination. Further, to prove innocence, section 54 Cr PC provides an opportunity to the accused to offer medical examination. In civil disputes, free and informed consent has greater relevance. In *Rohit Shekhar v. Narayan Dutt Tiwari*,¹¹ however, the court ordered for use of appropriate force to take the blood sample.

Issue of consent before ordering forensic test

In civil disputes, competent consent¹² of the subject before conducting forensic tests has been advocated by the Supreme Court in the *Selvi*. In DNA profiling, the *Goutam Kundu v. State of West Bengal*¹³ has already stressed on consent. But judiciary, time and again, has deviated from this premise of law especially in ‘search of truth’.

The order of civil court for conducting DNA test without consent of the petitioner has been challenged in *Ajaib Singh v. Smt. Surjit Kaur*.¹⁴ In this case Surjit Kaur claimed herself to be the daughter of Kartar Kaur @ Karam Kaur and Rajwant Singh, the father of the petitioner, Ajaib Singh. She pleaded that her parents lived in Pakistan before partition of India where her mother died. Later, Rajwant Singh married one Gurmej Kaur and shifted to India and settled in village Tehang in Tehsil Phillaur, District Jalandhar. Respondent Surjit Kaur had filed a suit for mutation of land in her favour in the Court of Sub-Divisional Magistrate Phillaur. Since she was unable to produce any documentary evidence to prove

10 1979 SCR (1) 931.

11 ILR (2010) Supp. (3) Del. 573.

12 The competent consent includes informed consent, *i.e.* information about health effects of the test on person and the consequence in the matter under inquiry.

13 1993 AIR 2295; 1993 SCR (3) 917.

14 2014 SC Online P&H 2009.

herself as daughter of Rajwant Singh, the mutation was sanctioned in favour of the beneficiaries of the Will executed by Rajwant Singh, father of the petitioner. Later she filed appeal in civil court for seeking permission for DNA Profile test of Surjit Kaur to match it with Ajaib Singh. The civil court, for determination of the claim for mutation, preferred DNA test since the claimant was unable to produce any documentary evidence to prove herself the daughter of the testator. Ajaib Singh challenged the court order in high court; which justified the civil court order holding that “The test result gives the rather rare but precious thing called peace of mind.”¹⁵

In *Saheb Das v. The State of Bihar*,¹⁶ the informant sent his unemployed son Dilip Pandey, aged about 19 year, with petitioner Saheb Das to Ludhiana for earning his livelihood. The boy never came back and aggrieved father lodged a complaint alleging that the petitioners had either killed his son or sold him. During investigation, the chief judicial magistrate, on the prayer of investigating officer, cancelled the bail of the accused under section 437(5) Cr PC based on accusation of tempering with the evidence and intimidating the complainant and his wife; and also evading notice to conduct narco-test on them. Being aggrieved by the order of the chief judicial magistrate, the accused preferred application under section 482 Cr PC in the High Court of Patna. The high court referred the *Selvi*¹⁷ and held

15 *Id.*, para 14.

16 2014 SC Online Pat. 984 ; MANU/BH/0726/2014.

17 *Supra* note at 7, The Supreme Court held:

We are also of the view that forcing an individual to undergo any of the impugned techniques violates the standard of “substantive due process” which is required for restraining personal liberty. Such a violation will occur irrespective of whether these techniques are forcibly administered during the course of an investigation or for any other purpose since the test results could also expose a person to adverse consequences of a non-penal nature. The impugned techniques cannot be read into the statutory provisions which enable medical examination during investigation in criminal cases i.e. the Explanation to Sections 53, 53-A and 54 of the Code of Criminal Procedure, 1973. Such an expansive interpretation is not feasible in light of the rule of “ejusdem generis” and the considerations which govern the interpretation of statutes in relation to scientific advancements. We have also elaborated how 13 / 15 the compulsory administration of any of these techniques is an unjustified intrusion into the mental privacy of an individual. It would also amount to “cruel, inhuman or degrading treatment” with regard to the language of evolving international human rights norms. Furthermore, placing reliance on the results gathered from these techniques comes into conflict with the “right to fair trial”. Invocations of a compelling public interest cannot justify the dilution of constitutional rights such as the “right against self- incrimination.

In light of these conclusions, we hold that no individual should be forcibly subjected to any of the techniques in question, whether in the context of investigation in criminal cases or otherwise. Doing so would amount to an unwarranted intrusion into personal liberty. However, we do leave room for the voluntary administration of the impugned techniques in the context of criminal justice provided that certain safeguards are in place. Even when the subject has given consent to undergo any of these tests, the test results

that narco-test cannot be conducted without prior consent of the subject. Scientific examinations like narco-test and polygraph are external aids to investigation to get some clues in order to conduct further investigation but do not constitute admissible evidence against the accused. In the instant case, deception detection techniques (DDT) helped investigation in recovery of blood stained towel which connected crime with the criminal.

DNA profiling in parentage determination and deciding maintenance suits

DNA has been used for paternity determination by Indian court since 1991.¹⁸ The issue of paternity is highly relevant in the society for various purposes. It ascertains maintenance to child, advance right to know one's lineage, kinship and inheritance, exclusion may be a ground in suit for divorce, *etc.* Section 112 of the Indian Evidence Act, 1872 (IE, Act) deals with presumption of paternity and under the cocoon of legitimacy, under lawful wedlock between mother and her husband, the putative father and socio-legal father are presumed to be one despite the fact that in real life both may be different. The law in India does not recognize child birth outside marriage and such children, in legal parlance, are referred to as illegitimate. Putative father has no legal recognition in the society and the laws on succession, which are predominantly governed by the personal laws, are also designed accordingly.¹⁹

In *Nandlal Wasudeo Badwaik v. Lata Nandlal Badwaik*²⁰ (*Nandlal Badwaik*), the Supreme Court observed that "Truth must triumph is the hallmark of justice". In this case, a girl child was born during the continuance of the valid marriage and hence under the aegis of section 112, the appellant should have been the legitimate father of that child. However, DNA test report excluded the appellant as biological father. The test was repeated on the request of the wife but second report further confirmed exclusion of the husband. At this stage, wife requested the court to determine legitimacy under section 112. The traditional approach of the higher judiciary in India, as expressed in a series of paternity dispute cases,²¹ was to

by themselves cannot be admitted as evidence because the subject does not exercise conscious control over the responses during the administration of the test. However, any information or 14 / 15 material that is subsequently discovered with the help of voluntary administered test results can be admitted in accordance with Section 27 of the Evidence Act, 1872.

18 *Kunhiraman v. Manoj*, II (1991) DMC 499.

19 S. K. Verma and G. K. Goswami, "DNA Profiling: Current perspective and future Challenges in India", 241 *Forensic Science Int.* 183-189 (2014).

20 (2014) 2 SCC 576.

21 In *Kamti Devi v. Poshi Ram* (2001) 5 SCC 311, para 10, the court had observed:

"The result of a genuine DNA test is said to be scientifically accurate. But even that is not enough to escape from the conclusiveness of Section 112 of the Act e.g. if a husband and wife were living together during the time of conception but the DNA test revealed that the child was not born to the husband, the conclusiveness in law would remain irrebuttable. 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. But even in

determine legitimacy based on presumption of child birth within lawful wedlock and not to search for the biological parentage. In the appeal preferred by the husband pertaining to maintenance of wife and the alleged daughter, the apex court preferred truth derived from scientifically proved biological reality over the presumption of a fact and legal fiction. In the instant case, the court was confronted with the issue that section 112 assumed the legitimacy of the child but DNA proved that the appellant was not the biological father. Hence, the court was faced with a contradiction between law and science. The Supreme Court, in *Banarasi Dass v. Teeku Dutta*²² resolved the issue of contradiction observing thus:

We may remember that Section 112 of the Evidence Act was enacted at a time when the modern scientific advancement and DNA test were not even in contemplation of the Legislature. The result of DNA test is said to be scientifically accurate. Although Section 112 raises a presumption of conclusive proof on satisfaction of the conditions enumerated therein but the same is rebuttable. The presumption may afford legitimate means of arriving at an affirmative legal conclusion. While the truth or fact is known, in our opinion, there is no need or room for any presumption. Where there is evidence to the contrary, the presumption is rebuttable and must yield to proof. 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 bank upon presumptions, unless science has no answer to the facts in issue. In our opinion, when there is a conflict

such a case the law leans in favour of the innocent child from being bastardised if his mother and her spouse were living together during the time of conception. Before we proceed to consider the rival submissions, we deem it necessary to understand what exactly DNA test is and ultimately its accuracy. All living beings are composed of cells which are the smallest and basic unit of life. An average human body has trillion of cells of different sizes. DNA (Deoxyribonucleic Acid), which is found in the chromosomes of the cells of living beings, is the blueprint of an individual. Human cells contain 46 chromosomes and those 46 chromosomes contain a total of six billion base pair in 46 duplex threads of DNA. DNA consists of four nitrogenous bases adenine, thymine, cytosine, guanine and phosphoric acid arranged in a regular structure. When two unrelated people possessing the same DNA pattern have been compared, the chances of complete similarity are 1 in 30 billion to 300 billion. Given that the Earth's population is about 5 billion, this test shall have accurate result. It has been recognized by this Court in the case of *Kamti Devi* (supra) that the result of a genuine DNA test is scientifically accurate.”

See also *Banarasi Dass v. Tikku Dutta* (2004) 4 SCC 449; *Bhabani Prasad Jena v. Orissa State Commission for Women* (2010) 8 SCC 633; *Ramkanya Bai v. Bharatram* (2010) 1 SCC 85.

22 *Ibid.*

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.

Differentiating the facts of the instant case, the court held:

The decision of this court in the cases of Goutam Kundu (supra), Banarsi Das (supra) and Bhabani Prasad Jena (supra), the same have no bearing in the facts and circumstances of the case. In all these cases, the court was considering as to whether facts of those cases justify passing of an order for DNA test. When the order for DNA test has already been passed, at this stage, we are not concerned with this issue and we have to proceed on an assumption that a valid direction for DNA test was given.

Finally science prevailed upon the apex court and not the law. The court concluded:

The husband's plea that he had no access to the wife when the child was begotten stands proved by the DNA test report and in the face of it, we cannot compel the appellant to bear the fatherhood of a child, when the scientific reports prove to the contrary. We are conscious that an innocent child may not be bastardized as the marriage between her mother and father was subsisting at the time of her birth, but in view of the DNA test reports and what we have observed above, we cannot forestall the consequence. It is denying the truth. Truth must triumph is the hallmark of justice.

The *Nandlal Badwaik* became pathfinder to the Supreme Court in *Dipanwita Roy v. Ronobroto Roy*²³ to uphold the decision of family court and the high court allowing DNA test for determining not only the paternity of new born child but also to conclusively testify the veracity of accusations of infidelity levelled by the husband in the divorce petition filed in the family court under section 13 of the Hindu Marriage Act, 1955. The apex court was, therefore, firm in holding that proof based on DNA test would be sufficient to dislodge a presumption under section 112 of the Indian Evidence Act.

The High Court of Andhra Pradesh, while deciding issue of maintenance for daughter (along with wife) in *Achugatla Raju @ A. B. V. Raju v. Smt. Achugatla Sujana @ Shoba*,²⁴ placed reliance on the *ratio* of the *Nandlal Badwaik*²⁵ by selectively refusing maintenance to daughter based on adverse conclusion (that petitioner is not the biological father of the fourth girl child) drawn by the court as she declined to undergo DNA test.

23 2014 SCC Online SC 831: (2015) 1 SCC 365.

24 2014 SCC Online Hyd 453: 2015 Cri LJ (NO 212) 65.

25 *Supra* note 20.

The *Nandlal Badwaik* is a step ahead of the *Rohit Shekhar* and set the judicial tone for undermining twin concepts of consent and privacy; and protecting the best interest of the child and the mother at the time of conducting DNA test, which was the hallmark of the *Goutam Kundu*. Ignoring the consent of the subject may also compromise the fundamental right of a person against self-incrimination. The court has indeed shed off the 'cocoon of presumptive legitimacy' and passionately allowed the 'scientific truth' to prevail, which is the hallmark of justice, but in absence of adequacy of law, it may amount to judicial activism. Further, coercive DNA test allowed by the court for putative parentage determination of a child born within lawful wedlock, may amount to conscious bastardization of an innocent child and branding the mother of easy virtue and therefore, needs judicial reconsideration.

The apex court has observed, "In our opinion, 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 later must prevail over the former...."²⁶ Interestingly, the High Court of Delhi extended LGBT rights and declared section 377 of the Indian Penal Code, 1860 unconstitutional in *Naz Foundation v. State of NCT Delhi*²⁷ but in *Suresh Kumar Kaushal v. Naz Foundation*,²⁸ the Supreme Court overruled that judgement by placing reliance on the existing law and did not accede to the contention of social changes. In the *Nandlal Badwaik*, conscious bastardization of innocent girl child by Supreme Court is respectfully refutable since social justice is the inherent component of justice in stratified and feudalistic Indian social milieu. It further contradicts the spirit of purposive construction while determining maintenance to the needy and vulnerable female child as in *Badshah v. Sou Urmila Badshah Godse*.²⁹ The intent of welfare-ism of the mother and child expressed by law makers in section 112 of the IE Act seems diluted by passionately preferring 'scientific truth' over 'conclusive presumption of legitimacy' by the courts in India.

However, DNA has played vital role in strengthening rights of unmarried mother and her child especially those belonging to marginalized sections of society who suffered sexual exploitation under various compelling circumstances including deceitful promise of marriage. Still the vital issue remaining unaddressed is that, until putative father gets social acceptance and legal recognition, merely determining the putative father by DNA does not confer any right to the mother and the child. Unless society accepts both putative and social father and law accordingly modifies that position, mere DNA test cannot help the likes of Rohit Shekhar to enjoy legal validation of being the legitimate son of Narayan Dutt Tiwari.

26 *Id.* at 586.

27 2009 SCC Online Del 1762 : (2009) 111 DRJ 1 (DB).

28 (2014) 1 SCC 1: 2013 SCC Online SC 1088.

29 (2014) 1 SCC 188.

Disputes related to maternity determination

Before advent of *in vitro* fertilization, maternity was considered a reality unlike paternity being believed to be a myth. In the recent past, surrogacy of womb, gametes (sperms and ova) and embryos are on the rise and disputes for maternity determination are also approaching the courts in India.

A dispute of maternity came up before the trial court which passed an order for conducting DNA test on the submission of the petitioner to compare genetic code of parties to establish genetic affiliation through maternal line from a common ancestor; despite the fact that submission was opposed by the defendant. The order for DNA probe was challenged in *Sube Singh v. Smt Shanti Devi*³⁰ in which the High Court of Punjab and Haryana upheld the order citing the *ratio* of the *Nandlal Badwaik* where the Supreme Court applied the principle of exclusion of legal presumption to truth determined by the DNA test, exclaiming aphoristically, "It is denying the truth. 'Truth must triumph' is the hallmark of justice."³¹

Property disputes resolution by using DNA profiling

In *Amarjit Singh @ Surjit Singh @ Kaka Singh*,³² the petitioner claimed to be the son of Darshan Singh and prayed before High Court of Punjab and Haryana for a declaration that Amarjit Singh and Surjit Singh were one and same person and he was entitled to corrected name as Darshan Singh instead of Darshan Lal in all his documents and certificates. The dispute involved possession of property and other criminal issues. The plaintiff set out his case by stating that he was the son born out of wedlock to Darshan Singh and Ageyawanti and after the death of Mrs. Ageyawanti, he was brought up by Darshan Singh's real aunt (*bua*) and her husband Darshan Lal. Plaintiff also contended that Darshan Singh had solemnized second marriage with Janak Rani, from whom two daughters, namely, Savita Rani and Mamta and one son, namely Deepak Kumar were born. Since Darshan Singh did not accept the plaintiff as his natural son, the present suit for declaration was filed. Darshan Singh, upon notice, denied the assertions made by the plaintiff and said that plaintiff was the son of his sister Leelawanti and her husband Darshan Lal. He further mentioned that in the will, his son Deepak Kumar @ Surjit was mentioned and the plaintiff was not known as Surjit Kumar. On the rebuttal evidence, the plaintiff prayed for conducting DNA test of himself, Darshan Singh and Leelawati to determine their biological relationship with the plaintiff. In another petition in the same matter, the petitioner Swarna Kanta contended that trial court had directed her to give blood sample for the purpose of DNA test, although she was neither a party to the *lis* nor any notice of the application was served upon her and thus, the order directing Swarna Kanta to give her blood sample was against the law and plaintiff prayed to set aside the said order of the court. In this matter,

30 2014 SCC Online P & H 4982.

31 *Supra* note 20 at 586.

32 *Darshan Singh v. Amarjit Singh*, MANU/PH/2360/2015.

the high court referred to *Sharda v. Dharam Pal*³³ (*Sharda*) where the Supreme Court had observed:

Goutam Kundu (*supra*) is therefore, not an authority for the proposition that under no circumstances the Court can direct that blood tests be conducted. It, having regard to the future of the child, has, of course, sounded a note of caution as regard mechanical passing of such order. In some other jurisdictions, it has been held that such directions should ordinarily be made if it is in the interest of the child. X X X

If despite an order passed by the Court, a person refuses to submit himself to such medical examination, a strong case for drawing an adverse inference would be made out. Section 114 of the Indian Evidence Act also enables a Court to draw an adverse inference if the party does not produce the relevant evidences in his power and possession.

So viewed, the implicit power of a court to direct medical examination of a party to a matrimonial litigation in a case of this nature cannot be held to be violative of one's right of privacy.

86. To sum up, our conclusions are: 1. A matrimonial court has the power to order a person to undergo medical test; 2. Passing of such an order by the court would not be in violation of the right to personal liberty under Article 21 of the Indian Constitution; and 3. However, the Court should exercise such a power if the applicant has a strong prima facie case and there is sufficient material before the Court. If despite the order of the court, the respondent refuses to submit himself to medical examination, the court will be entitled to draw an adverse inference against him.

In this case, the High Court of Punjab and Haryana justified the DNA test observing that in matrimonial disputes where allegations are placed on medical grounds of impotency, schizophrenia and the like, only medical examination can ascertain the fact to help a court in finding the truth. In such cases, plea of respondent of violation of right to privacy under art. 21, (which is not an absolute right under the Constitution of India), may frustrate the purpose of justice. On similar ground, the court justified conducting DNA test to determine parentage to reconcile the competing interests of the plaintiff and respondent. The high court referred to the judgement of High Court of Delhi in *Rohit Shekhar v. Narayan Dutt Tiwari*,³⁴ after considering many judgments of the Supreme Court as well as by referring

33 (2003) 4 SCC 493.

34 (2011) 2 SCC 88.

the *Sharda* case, where a three judges bench of the apex court had culled out the three principles,³⁵ pushing back five guiding principles in the *Goutam Kundu* case:³⁶

Three guiding principles put forth by the Supreme Court in the *Sharda* case were: (i) The conclusive proof standard mandated by s. 112 of the Evident Act, read with Section 4, admits an extremely limited choice before the Court, to allow evidence of “non access” to a wife by the husband, who alleges that the child begotten by her is not his offspring; it is designed to protect the best interest of the child, and his legitimacy; (ii) A “paternity” action by the son or daughter of one, claiming the defendant to be his or her biological father, filed in Court, particularly after the plaintiff as in this case, attains adulthood, or claims paternity, for other reasons, (such as non consensus sexual relationship, and on the basis of the child rights/ either under s. 125 Criminal Procedure Code, or in a suit for declaration or for maintenance) cannot be jettisoned by shutting out evidence , particularly based on DNA test reports, on a threshold

35 *Supra* note 32, para 86. Three guiding principles put forth by the Supreme Court were: (i) The conclusive proof standard mandated by s. 112 of the Evident Act, read with Section 4, admits an extremely limited choice before the Court, to allow evidence of “non access” to a wife by the husband, who alleges that the child begotten by her is not his offspring; it is designed to protect the best interest of the child, and his legitimacy; (ii) A “paternity” action by the son or daughter of one, claiming the defendant to be his or her biological father, filed in Court, particularly after the plaintiff as in this case, attains adulthood, or claims paternity, for other reasons, (such as non consensus sexual relationship the basis of fact, and on the basis of the child rights/ either under s. 125 Criminal Procedure Code, or in a suit for declaration or for maintenance) cannot be jettisoned by shutting out evidence , particularly based on DNA test reports, on a threshold application of s. 112; the Court has to weigh all pros and cons, and, following the ruling in *Kundu* and *Jena (supra)*, on being satisfied about existence of “eminent need” make appropriate orders; and (iii) The development of the statute law-through enactment of the Hindu Adoptions and the Maintenance Act, 1956, the Criminal Procedure Code, 1973 and the Family Courts Act, 1984, read together with a child’s right to knowledge about her or his natural parentage has added a new dimension where the concept of paternity or a claim, cannot be ousted by s. 112 of the Evidence Act.

36 *Supra* note 13 para 26. Five guiding principles for courts while ordering DNA testing introduced by the Supreme Court were: (1) That courts in India cannot order blood test as a matter of course; (2) wherever applications are made for such prayers in order to have roving inquiry, the prayer for blood test cannot be entertained; (3) there must be a strong prima facie case in that the husband must establish non-access in order to dispel the presumption arising under s. 112 of the Evidence Act; (4) the court must carefully examine as to what would be the consequence of ordering the blood test; whether it will have the effect of branding a child as a bastard and the mother as an unchaste woman; and (5) no one can be compelled to give sample of blood for analysis.

application of s. 112; the Court has to weigh all pros and cons, and, following the ruling in Kundu and Jena (*supra*), on being satisfied about existence of “eminent need” make appropriate orders; and (iii) The development of the statute law-through enactment of the Hindu Adoptions and the Maintenance Act, 1956, the Criminal Procedure Code, 1973 and the Family Courts Act, 1984, read together with a child’s right to knowledge about her or his natural parentage has added a new dimension where the concept of paternity or a claim, cannot be ousted by s. 112 of the Evidence Act.

In a property dispute, the High Court of Karnataka preferred DNA test as demanded by the daughter to establish relationship as father and daughter despite father denying consent for undergoing DNA test. The DNA report went against the plaintiff but the court relied upon DNA report rather than presumption under section 112.³⁷

In a civil suit for partition and separate possession of the suit properties, plaintiffs (mother and two daughters) had no documentary proof of marriage or living together and child born to her with the petitioner. The trial court ordered for DNA test to establish genetic relationship between the plaintiffs and the respondent. The order of the trial court was challenged in *Sri Hanumappa v. Yallaka*³⁸ but the high court quashed the order for DNA testing by detailed arguments of validation at international and national level, to use DNA technology in dispute resolution.³⁹

37 *Supra* note 14.

38 *Id.*, para 14-15 2014 (4) AKR 402.

39 “As regards United States the law as stated in Forensic Sciences edited by Cyril H. Wecht is as under: “Parentage testing is the major (but not the exclusive) involvement of forensic serology in civil cases. The majority of disputed parentage cases involve disputed paternity, although an occasional disputed maternity, or baby mix-up case does arise, and can be solved using the tools of forensic serology described in this chapter. Blood typing has been used to help resolve paternity cases since the mid-1920’s. According to Latters, there were 3,000 cases tested in Berlin in 1924, and Schiff and Boyd said that the first case went to court in Berlin in 1924. Ottenberg, in this country published paternity exclusion tables in 1921, as did Dyke in England in 1922. It took somewhat longer to satisfy the courts, both in Europe and in country, that parentage exclusions based upon blood grouping were completely valid. Wiener said that he had obtained exclusion in a paternity case in this country which reached the courts early in 1933. In January of 1934, Justice Steinbrink of the New York Supreme Court in Brooklyn ordered that blood tests be performed in a disputed paternity action, using as precedent a decision by the Italian Supreme Court of Cassation, but his order was reversed upon appeal. Soon afterward, however, laws were passed in a number of states providing the courts with statutory authority to order blood testing in disputed paternity cases.

Paternity testing has developed somewhat more slowly in the United States than in certain of the European countries, but today the differences in the number of systems employed, and judicial acceptance of the results, are no longer than great. A number of authorities have recently reviewed the subject of paternity testing in some detail, and in some cases have summarized the results of large number of cases that they have investigated.

The high court further enumerated legal position in the light of various judgements of the Supreme Court for conducting DNA test.⁴⁰

Walker points out that failure to exclude a man, even at the 95 percent level of paternity exclusion does not mean that the alleged father is proven to be biologic father, because absolute proof of paternity cannot be established by any known blood test available. Although this fact is well known and appreciated by workers in the field of blood grouping and by attorneys active in this area, it is not generally understood by the lay public. However, blood group serology, using proven genetic marker systems, represents the most accurate scientific information concerning paternity and is so recognised in the United States, as well as in a number of countries abroad.

In para. 15, it was observed: In India there is no special statute governing this issue. Neither the Criminal Procedure Code nor the Evidence Act empowers the court to direct such a test to be made. In *Hanumamma v. Polavarapu Subbayya*, AIR 1951 Mad. 910 (1) (Polavarapu Venkteswarlu, minor by guardian and mother). In this case the application was preferred under section 151 of the Code of Civil Procedure invoking the inherent powers of the court to direct a blood test. The judge was of the view that:

“Section 151, Civil Procedure Code, has been introduced in to the Statute book to give effect to the inherent powers of Courts as expounded by Woodroffe, J., in *Hukum Chand Boid v. Kamalan and Singh* (1906) ILR 33 Cal.927). Such powers can only be exercised ex debito justitiae and not on the mere invocation of parties or on the mere volition of courts. There is no procedure either in the Civil Procedure Code or in the Indian Evidence Act which provides for a test of the kind sought to be taken by the defendant in the present case. It is said by Mr. Ramakrishna for the respondent before me that in England this sort of test is resorted to by Courts where the question of non-access in connection with an issue of legitimacy arises for consideration. My attention has been drawn by learned counsel to page 69 of Taylor’s Principles and Practice of Medical Jurisprudence, Volume 8, where it is stated thus: “In *Wilson v. Wilson, Lancet* [1942] 1. 570, evidence was given that the husband’s group was OM, that the wife’s was BM and that the child’s was ABN. The Court held that the husband was not the father of child, and granted a decree for nullity.”

40 *Id.*, para 6, it was observed: In the light of the above decisions of the apex court, it may be said that the following legal position emerges:

- a) That parties to a civil suit cannot be subjected to DNA Analysis as a matter of course;
- b) Whenever applications are made with a prayer for such a test or analysis, by way of a roving enquiry the same should not be entertained; It is for the parties to place evidence in support of their respective claims and it is only in deserving cases that such a measure can be resorted to;
- c) In cases where the father denies paternity, he must establish a strong prima facie case of “non access” in order to dispel the presumption arising under Section 112 of the Evidence Act, 1872.

The burden of proof in that regard should be higher than the standard of preponderance of probabilities - it need not however, be proof beyond reasonable doubt;

- d) The Court must examine the possible consequence of such a test, especially in cases involving disputed paternity, having the effect of branding a child as a bastard and the mother as an unchaste woman;
- e) A party to a civil case cannot be compelled to subject himself or herself to a test or analysis;

In a civil suit for partition and separate possession of property, one Susheela claimed herself to be the daughter of G. Hanumanthappa. The trial court ordered for DNA test but DNA report proved the fact otherwise. Aggrieved by the report, the petitioner prayed to the court to re-conduct the test since blood samples allegedly were not taken in hygienic conditions. The court, however, on merit, rejected the plaint. She preferred appeal against the trial court order in *Smt. H. Susheela v. G. Hanumanthappa*⁴¹ where the High Court of Karnataka upheld the findings in DNA report and accordingly dismissed the appeal.

In 2014, courts appeared to be obsessed in frequently using DNA in deciding property disputes especially to ascertain claims of the petitioners for establishing genetic linkages with the respondents. This trend in the guise of property disputes resolution may interfere with the privacy domain of an individual and potentially brand the stakeholders as of immoral character. In the absence of statutory standing for separation of putative and socio-legal father, judicial passion for searching the 'truth about biology of child birth' is likely to create legal confusion, particularly in the law of inheritance (broadly guided under the personal laws) and in determining rights and duties of 'twin fathers' *vis-a-vis* the child. For instance, it is fallaciously believed that Rohit Shekhar, after DNA approved legal battle, became legitimate son of Narayan Dutta Tiwari; indeed it was fortunate that an out of court settlement was preferred by the litigants otherwise the court would have faced legal complications in accommodating social (legitimate) and genetic (biological-peter) fathers for a child as separate identities. It would have complicated the charter of rights and duties arising out of parent-child relationship. Rohit Shekhar despite being proved to be the biological son of Narayan Dutta Tiwari cannot inherit from his biological father according to existing laws. Despite the fact that Rohit's mother, after divorcing the legitimate father of Rohit in 2006, has remarried Narayan Dutta Tiwari in 2014, still he cannot inherit directly from Narayan Dutta Tiwari but can only inherit legally through his maternal legacy. Introducing biological father, especially where socio-legal father apparently exists, may require social acceptance followed by necessary amendments in the laws. Considering the legal position, it is respectfully submitted that the courts may consider the legal status of biological father both in law and society and may like to avoid routine use of DNA technology in parentage determination, except in the rarest of rare cases until legislation intent comes in.

The rising trend of validating usage of DNA test by higher judiciary for paternity determination is overtly being used by the petitioner husbands to establish infidelity of wives in order to establish legal ground for strengthening divorce

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- f) An order by a court directing a party to submit to a test would not however, be in violation of the right to personal liberty under Article 21 of the Constitution of India;
 - g) If on consideration of all aspects, if a court has passed an order against a party to submit himself to medical examination and such party refuses to so submit himself - the court may draw an adverse inference against him.

41 2015 (1) AKR 24.

suit. This judicial trend warrants reconsideration and requires an in-depth debate on the issue of legal recognition of biological parents, especially in those cases where legitimate father may be ascertained by section 112 of the IE Act (irrespective of whether dead or alive). A child, in the existing legal framework in India, can neither inherit name nor property from the biological parents (both father and mother in case of surrogacy). Hence, the legal acumen and legislators may draw attention to this vital socio-legal issue especially in the era of assisted reproduction where *in vitro* fertilisation has introduced subletting of not only womb but also gametes (both sperms and ova), resulting in diffused parentage.⁴²

DNA in service matters

Interestingly, DNA forensics has entered the courtroom to render justice in service matters as well. The High Court of Calcutta received an appeal related to the termination of services of the petitioner, an airhostess working as a cabin crew, on the ground that she was overweight.⁴³ The trial judge upheld the order of termination being found in accordance with the due process of law. In appeal, the court relying on the Supreme Court decision in *Sheela Joshi v. Indian Airlines Ltd.*⁴⁴ took assistance of DNA technology to ascertain the status of gene named fat mass and obesity-associated (FTO) gene responsible for increased body mass index (BMI) being primarily responsible for causing obesity⁴⁵ and accordingly provided relief to the appellant. This case reminds one of the legal struggle of female officials to protect right of equality in public employment as earlier contested in *Air India v. Nargesh Meerza*⁴⁶ and *C. B. Muthamma v. Union of India*.⁴⁷

DNA evidence in criminal cases for victim identification

In criminal matters, DNA profiling has multi-fold applications. It not only helps in cracking cold cases and linking crime with criminals with more precision but also help in identification of victims in many cases. In many cases, the victims are killed and after lapse of time, it becomes difficult to connect recovered body remains with the victim. In such situations, DNA technology is a globally reliable and admissible forensic tool. DNA may also further help in proving of innocence of the accused in case of false accusation and wrongful conviction. DNA has helped the Indian judiciary in connecting crime with criminal and identification of

42 G. K. Goswami, "The genetic truth of surrogate parentage", 83 (4) *Med Leg J* (2015) 188-193.

43 *Smt. Nipa Dhar (Nee Ghosh) v. National Aviation Company of India Ltd.* (2010) SCC Online Cal 2366 : (2011) 1 Cal LT 284.

44 (2010) 1 SCC 376.

45 Katherine A. Fawcett and Ines Barroso, "The genetics of obesity: FTO leads the way", 28(6) *Trends Genet.* 266-274 (2010).

46 (1982) 1 SCR 438.

47 (1980) 1 SCR 668.

the victims with precision. However, integrity and chain of custody (CoC)⁴⁸ of biological sample recovered from scene of crime remain of vital significance in proving guilt beyond reasonable doubt. In Priyadarshini Mattoo murder case, the trial court exonerated the accused based on allegedly broken CoC. However, in appeal the Delhi high court awarded death penalty⁴⁹ but the Supreme Court reduced it to life imprisonment.⁵⁰

The professional approach of detection of crime and investigative skills of Uttar Pradesh police invited severe public criticism in the famous *Arushi* murder case⁵¹ of NOIDA, Uttar Pradesh. However, the instance of professional use of forensic aid in investigation by district police, Varanasi got judicial approval in *Dharam Deo Yadav v. State of Uttar Pradesh*.⁵² Here, a 22 year old lady from New Zealand, named Diana Clare Routley visited Varanasi as a tourist and trusting an unauthorised tourist guide named Dharma Deo Yadav, the accused, went with him to visit his village Brindaban, district Gazipur and was gang raped and murdered. While addressing the acceptability of DNA report, the apex court observed:

The DNA stands for deoxyribonucleic acid, which is the biological blueprint of every life. DNA is made up of a double stranded structure consisting of a deoxyribose sugar and phosphate backbone, cross-linked with two types of nucleic acids referred to as adenine and guanine, purines and thymine and cytosine pyrimidines. The most important role of DNA profile is in the identification, such as an individual and his blood relations such as mother, father, brother, and so on. Successful identification of skeleton remains can also be performed by DNA profiling. DNA usually can be obtained from any biological material such as blood, semen, saliva, hair, skin, bones, etc. The question as to whether DNA tests are virtually infallible may be a moot question, but the fact remains that such test has come to stay and is being used extensively in the investigation of crimes and the court often accepts the views of the experts, especially when cases rest on circumstantial evidence. More than half a century ago,

48 Chain of Custody (CoC), in legal context, is a procedural protocol which represents custody trail in the form of chronological log containing details of seizure, custody, transfer, diagnostics and disposition.

49 *Santosh Kumar Singh v. State through CBI* 139 (2007) DLT 407.

50 *Santosh Kumar Singh v. State through CBI* (2010) 9 SCC 747.

51 A gruesome murder of young school girl was committed in the house of a dentist couple in NOIDA Uttar Pradesh on May 15, 2005. Next day, the dead body of servant Hemraj was recovered from the terrace of the house. The investigation by local police and subsequently by CBI could not conclude culpable liability beyond reasonable doubt. However, based on circumstantial evidences, the CBI trial court convicted the parents of the deceased girl on November 26, 2013.

52 (2014) 5 SCC 509.

samples of human DNA began to be used in the criminal justice system. Of course, debate lingers over the safeguards that should be required in testing samples and in presenting the evidence in court. DNA profile, however, is consistently held to be valid and reliable, but of course, it depends on the quality control and quality assurance procedures in the laboratory. Close relatives have more genes in common than individuals and various procedures have been proposed for dealing with a possibility that true source of forensic DNA is of a close relative.

After lapse of one year, the skeletal remains of the deceased were recovered by police under section 27 of the IE Act,⁵³ buried underground in the house of the accused. On the issue of 'custody' under section 27, the court further clarified:

The expression "custody" which appears in Section 27 did not mean formal custody, which includes any kind of surveillance, restriction or restraint by the police. Even if the accused was not formally arrested at the time when the accused gave the information, the accused was, for all practical purposes, in the custody of the police. This Court in *State of Andhra Pradesh v. Gangula Satya Murthy* (1997) 1 SCC 272 held that if the accused is within the ken of surveillance of the police during which his movements are restricted, then it can be regarded as custodial surveillance. Consequently, so much of information given by the accused in "custody", in consequence of which a fact is discovered, is admissible in evidence, whether such information amounts to a confession or not. Reference may also be made to the Judgment of this Court in *A.N. Venkatesh v. State of Karnataka* (2005) 7 SCC 714. In *Sandeep v. State of Uttar Pradesh* (2012) 6 SCC 107, this Court held that it is quite common that based on admissible portion of the statement of the accused, whenever and wherever recoveries are made, the same are admissible in evidence and it is for the accused in those situations to explain to the satisfaction of the Court as to nature of recoveries and as to how they came into the possession or for planting the same at the place from where they were recovered. Reference can also be made to the Judgment of this Court in *State of Maharashtra v. Suresh* (2000) 1 SCC 471, in support of the principle.

In the instant case, the identification of the skeletal bones recovered and connecting them with the deceased Ms. Diana was a herculean task before

53 The Indian Evidence Act, 1872, s. 27 reads: "How much of information received from accused may be proved.- Provided that, when any fact is proved to be discovered in consequence of information received from a person accused of any offence, in the custody of a police-officer, so much of such information, whether it amounts to a confession or not, as relates distinctly to the fact thereby discovered, may be proved."

investigating agency. Personal identification of body remains were carried out by using various forensic techniques like superimposed photography of the skull remains, comparison of dental records of the said individual from dental findings of bones and DNA profiling matching with the father of the deceased. Based on the appreciation of the forensic evidences, the High Court of Allahabad confirmed death sentence to Dharam Deo awarded by the district and session judge, Varanasi.⁵⁴ In the instant case, the Supreme Court modified the death sentence to life term.

In *Anil @ Anthony Arikswamy Joseph v. State of Maharastra*,⁵⁵ relying on scientific evidences including DNA profile and oral evidences, the accused was convicted and punished with death sentence and fine by the sessions judge, Nagpur for gruesome murder of a minor boy aged about 10 years after subjecting him to carnal intercourse (pederasty)⁵⁶ and then strangulating him to death. The apex court upheld the conviction, *albeit* death sentence was modified to incarceration of further period of thirty years, without remission, in addition to the sentence he already has undergone.

In *Nitish Katara* murder case, the identification of the deceased victim was difficult due to availability of only a small portion of one un-burnt palm with fingers. Here also, DNA profile helped in identifying the body remains by matching DNA profile with parents of the deceased which helped the High Court of Delhi to uphold the conviction of the accused.⁵⁷

In *Sushil Mandal v. The State* represented by CBI,⁵⁸ the petitioner, father of the deceased boy, challenged the findings of DNA profiling. The deceased boy fell in the adolescent cusp of mutual infatuation with a school girl and parents of both were advised by school administration for keeping check on them. Later, the boy was found reportedly missing and, after a week, a fully decomposed unidentified body was fished out from a lake. The petitioner claimed of not identifying the body remains and clothes of his missing son. He preferred *habeas corpus* petition in the high court accusing the father of the girl and praying the high court for directing the investigation by the Central Bureau of Investigation (CBI). The DNA test of the body remains matched with the genetic profiles of the

54 *Dharma Deo Yadav v. State of Uttar Pradesh*, 2005 DNR (HC) 675.

55 (2014) 4 SCC 69.

56 Pederasty is a variant of sodomy where the intercourse is between a man and a young boy that means when the passive agent is a young boy. Modi's *Medical Jurisprudence and Toxicology* states that if a passive agent is not accustomed to sodomy, abrasions on the skin near the anus is likely to appear and lesions will be most marked in children while they may be almost absent in adults, when there is no resistance to the anal coitus. Galster's *Medical Jurisprudence and Toxicology* says that lesions like recent lacerations, bruising, inflammation of the mucous membrane could be noticed in passive agent.

57 *Vishal Yadav v. State of Uttar Pradesh* (2014) SCC Online Del. 1373.

58 2014 SCC Online Mad 7362 : (2014) 2 MWN (Cri) : 580 (Mad) (1B).

parents (the petitioner and his wife) of the deceased. The skull super imposition test also established link between the deceased and the recovered body. But petitioner refused to accept the truth revealed by these scientific tests on one pretext or the other despite the fact that DNA test was repeated for his satisfaction. The apex court placed reliance on scientific tests including DNA profiling for human identification⁵⁹ and accordingly closed the matter.

The Bombay High Court in *Anmolsingh Swarnsingh Jabbal v. The State of Maharashtra*⁶⁰ upheld life term, relying upon DNA evidence, in addition to other evidences, for murder of a young lady engineer by her colleague in a case of one sided love. In another case of brutal rape and unnatural sexual act with a four year old girl child living in a slum dwelling was investigated by Delhi police and DNA profiling was used to link the perpetrator with the ghastly act of sexual violence. The court after having examined the detailed analysis of the child's testimony and various methodologies involved therein, approved the investigation findings based upon DNA reports and other evidences and held the accused guilty and set aside acquittal order passed by the trial court.⁶¹ In another case, the use of DNA technology paved the way to prosecute and convict the culprit to death, liable for kidnapping and killing after gang rape of a 10 year old school girl by auto rickshaw driver and throwing the corpse of the victim in a running canal.⁶²

Right of accused to prove innocence

In inquisitorial system of criminal justice, the investigating agency collects the evidence and the accused has only a limited opportunity to prove his innocence.⁶³ However, DNA profiling, from its inception, has helped the judicial system to prove the innocence of victims of false accusations.⁶⁴ In India, the legal justification for conducting DNA test at the behest of an accused to prove innocence was considered by the High Court of Punjab and Haryana.⁶⁵ The court held:

59 *Inspector of Police v. John David* (2011) 5 SCC 509.

60 2014 SCC Online Bom 397 : 2014 (2) Bom CR (Cri) 361 : MANU/MH/0352/2014.

61 *State of NCT Delhi v. Sujeet Kumar*, 2014 SCC Online Del 1952.

62 *State by the Inspector of Police v. Manoharan*, 2015 Cri. LJ 1215 : MANU/TN/0496/2014.

63 G. K. Goswami, "Fair and Participatory Investigation: The New Paradigm Towards Internal Police Reforms", in Shankar Sen (ed.), *Police Reforms* 142 (Anuugya Books, New Delhi, 2015).

64 In July 1986, Alec Jeffery of Leicester University in England, assisted the UK police to identify a rapist of two minor girls. In two different incidents of rape with 15 year old school girls, first in Narborough, Leicestershire, named Ms. Lynda Mann, in November 1983, and in second incident with Ms. Dawn Ashworth, in Enderby, Leicestershire. Interestingly, this forensic intervention not only identified the real offender to be Colin Pitchfork but also exonerated Richard Buckland who had already admitted his act of rape and murder of a teenager near Leicester.

65 *Jameel v. State of Haryana*, 2014 SCC Online P & H 7558.

If an accused, in a case, himself offers to get his semen examined by way of DNA profiling, no fault can be found in the order passed by the *Illaq* Magistrate in allowing the prayer made by the accused. This apart, fair and transparent investigation is the right of both the complainant and the accused. As the accused has offered his DNA testing by providing sample of his semen and if any semen is found on the swabs of the prosecutrix sent for forensic analysis and the semen match with each other, it would rather reinforce the allegations of the victim that she was subject to rape by the accused whose sample of semen has been examined in the laboratory.

Right to defend once life and liberty emanates from Article 21 of the Constitution of India. Respondent No. 2, therefore, has the right to defend his life and liberty. According to Forensic Science, DNA test is almost a foolproof method of identifying the culprit. When a request has been made by the accused-respondent, there is no reason to deny the request merely on an assumption of the petitioner that the DNA report may be used in favour of the respondent for securing his discharge in the proceedings.

The Indian judiciary has strengthened the right of an accused to have fairness and equity in evidence collection during investigation by providing him an opportunity to voluntarily offer before investigating agency to undergo forensic examination for proving his innocence. This approach brings equity and transparency and facilitates fair investigation which remains the precursor to fair trial. The basic purpose of fair trial gets frustrated if evidences, at the stage of investigation, are not collected with due fairness.

Limitations of DNA profiling

The Patna high court, in *Rajiv Singh v. The State of Bihar*,⁶⁶ referred to *OJ Simpson case*⁶⁷ and noted the possible errors at various stages involved in DNA procedure and observed:

One of the lasting effects of the OJ Simpson case will likely be greater scrutiny by defence lawyers of the prosecution's forensic DNA evidence presented in criminal cases. In the Simpson case, the defence, in essence, put the crime laboratory on trial. There is no substantial dispute about the underlying scientific principles in DNA profiling, however, the adequacy of laboratory procedures and the competence of the experts who testify should remain open to inquiry.

Although, there is a common consensus within the scientific community that DNA profiling can yield results with a very high probability, the complex procedure of DNA profiling is not without problems. At every phase of the seven-step procedure just described, mistakes and improper handling of the DNA-probe can produce false results which in some cases can lead to a life sentence or even death-penalty judgement. Therefore, the adequacy of laboratory procedures and the competence of the experts who testify should remain open to inquiry.

The collection of biological evidence remains of utmost importance in forensic analysis. The manipulations or contamination of sample whether volunteer or negligently may vitiate the expert report.

Court emphasis on capacity building for law enforcement agencies

In 2014, the judiciary seemed concerned on the quality of investigation and accentuated upon capacity building for the investigating agencies and prosecutors especially in relation to forensic tools. In the *State of Gujrat v. Kishanbahi*,⁶⁸ the Supreme Court categorically emphasised on training for investigators and prosecutors handling sensitive matters. The importance of capacity building for improving investigating skills of police personnel was emphasized by the High Court of Jharkhand which held, “The Principal Secretary, Home is directed to ensure that the Police Officers of the Jharkhand Police shall be given intensive training as to how scientific investigation is to be done and how to collect finger print, blood stained earth and other incriminating articles so that successful scientific investigation can be done to find out the truth and to apprehend the actual culprit. Imparting training also comes within the duty of the Forensic Science Laboratories”⁶⁹

III CONCLUSION

Over the years, the judiciary in India has posed great faith and hope in forensic component of evidence collection for revealing the truth necessary in the administration of justice. The judicial approach, in determining paternity disputes, underwent an evolutionary progression and currently places high reliance on DNA ‘in pursuit of truth’ rather than ‘legal fiction of legitimacy’ despite the fact that the percept is contrary to the existing law. It is submitted that in parentage determination, the judiciary, in pursuit of truth, has transgressed the legal boundaries of section 112. In 2014, the *Nandlal Badwaik* has set the tone for courts to pierce

67 *People of the State of California v. Orenthal James Simpson*, 28 *Loy. U. Chi. L. J.* 461 (1997).

68 (2014) 5 SCC 108.

69 *Md. Idris Ansari v. State of Jharkhand*, 2014 SCC Online Jhar 595.

the “cocoon of legitimacy”⁷⁰ and lifted the veil of secrecy from the sexual privacy of females. DNA led forensic voyeurism into bedrooms has exposed the putative father in the social system, introducing the concept of “twin parentage” for which there is no room in the existing Indian legal framework. In fact, the judicial trajectory for using DNA in courtrooms, from the *Goutam Kundu* via the *Rohit Shekhar* to the *Nandlal Badwaik*, is a tale of ‘journey from presumption to genetic truth’ in paternity determination. In the recent past, reproductive science has introduced the concept of optional divorce from parental responsibility of bearing a child, yet one may become a parent. Hence, the existing legal framework on parentage determination seems to be inadequate being archaic in nature and in need of complete overhaul to align it with the changing pace of society and development in scientific endeavour; otherwise time may not be far away when many Rohit Shekhars may knock the doors of the court to determine their genetic parentage.

The scientific aids to investigation have legal standing under section 45 of the IE Act. However, law of evidence in India specifically recognizes handwriting and fingerprint experts. The forensic evidence gets validation under section 293, Cr PC. Reports of various forensic experts including DNA profiling find no mention under section 293, Cr PC., which always draws adverse view of the defense in the courtroom. The judiciary and legislature are requested to consider filling this void.

The advent of the tDNA (touch DNA), mtDNA (mitochondrial DNA), Y-chromosome analysis (Y-STR) and RNA analysis are yet other refinements in the technology of DNA forensics having promising future in criminal justice system to help in stitching crime with the criminal with more precision, minimizing speculation leading to wrongful conviction.⁷¹ It is evident that in the western world, despite having advanced tools of investigation, cases of wrongful conviction have

70 In the *Rohit Shekhar v. Narayan dutta Tiwari*, ILR [(2010) Supp. (3) Del 573], High Court of Delhi observed, “There is of course the vital interest of child to not be branded illegitimate; yet the conclusiveness of the presumption created by the law in this regard must not act detriment to the interests of the child. The protective cocoon of legitimacy should not entomb the child’s aspiration to learn the truth of her or his paternity.”

71 Jennifer M. Romeika and Fei Yan, “Recent Advances in Forensic DNA Analysis”, 12 *J Forensic Res.* 1-13 (2013). DNA may be extracted from two different sources within the cell either from nucleus (nDNA) or the power house of the cell called mitochondria (mtDNA). nDNA may be extracted from blood, semen, saliva, body tissues and hair follicles while mtDNA is usually extracted from bones, teeth and hair segments. Nuclear DNA (nDNA), tightly knitted into chromosomes, is larger and contains all the information of an individual. Mitochondrial DNA (mtDNA) is much smaller, contains only 16,569 nucleotide bases (compared with nDNA, which contains 3.9 billion) and is circular in nature. mtDNA is exclusively inherited from the mother while in nDNA each copy is derived both from mother and father. mtDNA is useful when quantity of sample is insufficient for nDNA extraction. Less than 10% of the mitochondrial genome is non-coding and localized in a region called the D-loop. In this region, there are sequence variations that are inherited that can be used for forensic purposes. These regions, called hyper variable regions, are broken down into two sections: HV1 and HV2. It is within these regions that inherited sequence variations may be identified.

been reported leading to miscarriage of justice.⁷² Cases of false accusation and wrongful conviction based on prejudiced oral testimony and defective investigation remain a great challenge in India due to socio-economic stratification and prevalent corrupt practices existing in criminal justice system. It is submitted that the legislature and judiciary may give due consideration to introduction of integrated justice model to correct miscarriage of justice with the help of advanced forensic technology.

The forensic techniques need in-depth right based analysis and discussion by legal and intellectual brains from various quarters such as judiciary, academia, legislators and civil society. It is submitted that an evaluation of constitutional validity is required for unrealistic and pseudo-scientific forensic tools like narco-analysis which compel the subject to provide information in semi-cautious mental state under the influence of bodily administered hallucinogen drugs. It is said that forensic tools like DDTs may reduce use of third degree for extraction of information and to facilitate confession by law enforcement agencies, but in true sense, DDTs introduces improvised regime of 'scientifically assisted mental and bodily torture'. The Supreme Court is yet to reflect with detailed insight on constitutional validity of various forensic tools for revealing the truth during investigation. The legal interpretation on consent for extracting biological sample for conducting forensic diagnostics is constantly undermining liberty and privacy, which is of utmost concern in a democratic society. Forensic probing like DNA testing involves wide range of genetic surveillance resulting in both use and misuse of technology especially compromising privacy rights of an individual. Truth detection tests may open floodgates of systemic violation of human rights by using coercive pseudo-scientific practices masquerading as forensic tools. There is a need, with certain precautions and riders, of employing scientific advancements for preventing and detecting heinous crimes and there is a need to prefer harmonious construction of protection of individual rights under article 20(3) and article 21 and the society's interest for safety and security.

72 Edward Connors, Thomas Lundregan, Neal Miller and Tom McEwen, "Convicted by Juries, Exonerated by Science: Case Studies in the Use of DNA Evidence to Establish Innocence After Trial", U.S. Department of Justice (1996).