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FORENSIC LAW

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I INTRODUCTION

“Absence of evidence is not evidence of absence”¹

WORLDWIDE, JUDICIARY has acknowledged evidentiary power of expert’s opinion and granted considerable credit to forensic technologies for helping courts in corroboration of facts necessary for arriving at the truthful conclusion during judicial proceedings. Human identification poses great challenges in a variety of judicial matters, and expert’s inputs from various forensic disciplines such as DNA, voice spectroscopy, fingerprints widely assisted for this onerous investigative task with credible certainty. Forensic Podiatry² may also help in the identification of the subject. Scientific evidence is the fulcrum for corroboration in crime adjudication not only to determine guilt but also to defend innocents from the tyranny of mundane legal process. The legal system needs to acknowledge scientific investigation as a matter of the rights of individuals. The judiciary has adduced credit to forensic contribution in the justice system. However, forensic evidence in court proceedings must be used with due care to abstain from junk science.³

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1 Sir Martin Rees.

2 Podiatry or Chiropractic is a branch of medicine dealing with treatment of disorder of the foot, ankle and lower extremity.

3 “Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods”, Executive office of the President, President’s Council of Advisors on Science and Technology (PCAST), Washington, September 2016. Also see: “Strengthening Forensic Science in the United States: A path forward”, the National Academy of Sciences (The National Academic Press, Washington: 2009). Available at: <https://www.justice.gov/opa/pr/justice-department-publishes-statement-2016-presidents-council-advisors-science-and> (last visited on December 13, 2021).

In *Rajendra Pralhadrao Wasnik v. State of Maharashtra*,⁴ the Supreme Court has observed, “There can be no doubt that there have been remarkable technological advancements in forensic science and scientific investigations. These must be made full use of and the somewhat archaic methods of investigations must be given up”. The court further observed that “We are not going to the extent of suggesting that if there is no DNA profiling, the prosecution case cannot be proved but we are certainly of the view that where DNA profiling has not been done or it is held back from the trial court, an adverse consequence would follow for the prosecution.”⁵ The Himachal Pradesh high court has also buttressed that “it is expected from Investigating Agency to adopt latest advanced scientific technologies and methods of investigation to arrive at right conclusion.”⁶ Tripura high court has observed, “The science of DNA profiling has been so perfected that unless the procedure is compromised, the accuracy of result cannot be doubted. When the DNA profiling is done properly its results are infallible.”⁷ In criminal justice administration, oral testimony may be corroborated by multiple forensic technologies.⁸

COVID-19 pandemic at global landscape has largely wedged life at every level, and judiciary is no exception. Three tiers of judicial process across India, due to intermittent lockdowns, faced great challenges. During the year 2020, the courts remained closed for a substantial period, and later the proceedings were conducted through online mode, which has impacted both the quality and quantity of judicial deliberations because legal contests in courtrooms have sternly suffered. In this Annual Survey, nearly 100 relevant judgments delivered by the constitutional courts during 2020 have been examined and deliberated upon to bring out various legal issues and challenges connected with expert opinion. Various legal dimensions of forensic evidence especially on procedural fairness, a chain of custody, multi-pronged usage of DNA evidence, forensic management of rape-related pregnancies, non-DNA forensic inputs have emerged during the analytical study, which had succinctly been pondered in various sections of this survey. The courts have invariably accentuated the use of forensic technologies in the judicial process. Based on academic scrutiny of judgments, a few submissions have also been culled out in the concluding section of this write-up.

4 (2019) 12 SCC 460 at paras 54 - 57; (2019) 4 SCC (Cri) 420 : 2018 SCC OnLine SC 2799. Also see: *State of Gujarat v. Kishanbhai* (2014) 5 SCC 108 at para 12 : (2014) 2 SCC (Cri) 457; In *Krishna Kumar Malik v. State of Haryana* (2011) 7 SCC 130 : (2010) 3 SCC (Cri) 61 : 2011 SCC OnLine SC 869] the apex court observed that after the enactment of this provision with effect from June, 23, 2006 “it has become necessary for the prosecution to go in for DNA test in such type of cases, facilitating the prosecution to prove its case against the accused” (para 44, at 140).

5 *Id.* at para 54 at 485.

6 *Vinod Mittal v. State of Himachal Pradesh* 2020 SCC OnLine HP 764, para 25.

7 *Bahadur Debbarma v. State of Tripura* 2020 SCC OnLine Tri 400 at para 29.

8 *Arvind Singh v. State of Maharashtra* 2020 SCC OnLine SC 400.

II JUDICIAL OBSERVATIONS ON LEGAL PROCEDURES

Legal procedures are the means to implement substantive laws to achieve the end intended by legislative intent to deliver justice.⁹ Thus, procedural laws, especially in the punitive realm, if proved violated, vitiate the entire legal proceedings. During the extant survey, the constitutional courts have deliberated various relevant procedural issues which are briefly presented below.

Inordinate delay in judicial proceedings

Inordinate delay in trial proceedings is a common feature in India due to the huge pendency of cases. On the contrary, sometimes overzealous judges hastily conclude the court proceedings by grossly ignoring the basic principle of fair trial even without getting forensic advice.¹⁰ The high court has referred to celebrated case *Anokhilal v. State of Madhya Pradesh*¹¹ where the apex court has observed:

Expeditious disposal is undoubtedly required in criminal matters and that would naturally be part of the guarantee of a fair trial. However, the attempts to expedite the process should not be at the expense of the basic elements of fairness and the opportunity to the accused, on which postulates, the entire criminal administration of justice is founded. The pursuit for expeditious disposal, the cause of justice must never be allowed to suffer or be sacrificed. What is paramount is the cause of justice and keeping the basic ingredients that secure that as a core idea and ideal, the process may be expedited, but fast-tracking of process must never result in burying the cause of justice.

Importance of chain of custody of forensic samples

Chain of custody (CoC) of sample is a vital procedural prerequisite for validation of expert opinion as evidence in the courtroom.¹² CoC certifies the integrity of the questioned sample and protects it from possible manipulations or tampering. In case CoC is proved broken at any stage till the expert report is finalized, such opinion has no evidentiary value for court proceedings. High Court of Kerala in *Vibhooti Adhikari v. State of Kerala*¹³ has dismissed the appeal filed by the petitioner accused since no question was raised to the expert during his cross-examination by the defense; and there was no plausible suspicion of manipulation in the DNA sample collected from the accused, as observed by the appellate court. Radiofrequency identification (RFID) and Block Chain may also be used for securing the chain of custody of forensic samples.

9 Robert M. Pitler, "The Fruit of the Poisonous Tree Revisited and Shepardized", 56 *Cal. L. Rev.* 579-651 (1968).

10 *Hiranya Kumar Behera v. State of Orissa* 2020 SCC OnLine Ori 31 at para 14.

11 (2019) 20 SCC 196 at para 26; (2020) 3 (Cri) 803 : 2019 SCC OnLine SC 1637.

12 GK Goswami and Siddhartha Goswami, "Management of DNA Sampling in Rape Incidents" (2018) 7 *SCC J-4*; and Paul Giannelli, "Forensic Science: Chain of Custody" *Criminal Law Bulletin* 447-465 (1996). Also see: *Pravin v. State of Maharashtra* 2019 SCC OnLine Bom 368 : (2019) 2 AIR Bom R (Cri) 70.

13 *Vibhooti Adhikari v. State of Kerala* 2020 SCC OnLine Ker 3704 at paras 10 and 13.

The legality of contents stored in digital devices

In the era of information and technology, the world has shrunk to a global village breeding huge challenges for the administration of justice especially in the collection of evidence. Modern age criminals are technoids, and the digital world has melted geographical boundaries for the commission of crimes. Digital ‘Communication Devices’¹⁴ such as computers, pen-drives, mobile phones, CCTV cameras, audio-video recorders etc. have become a prominent source of a variety of electronic evidence such as stored documents, photos, audio-video recording, text messages etc. Emails and social media are yet other prominent sources to recover electronic footprints. In the last few decades, every jurisdiction has adjusted its adjective laws to incorporate electronic evidence. However, the jurisprudence of electronic evidence is ever-evolving mainly to ensure reliability and validity of a digital sample and its expert analysis to adduce admissibility as reliable evidence for judicial proceedings. The apex court has dealt with the admissibility of voice samples and observed that the court must be highly cautious to bank upon conviction solely on voice match evidence.¹⁵ However, voice spectroscopy-based expert opinion on voice samples has emerged as vital corroborative evidence.¹⁶

Indian courts have consistently engaged with a legal conundrum on procedures pertaining to electronic evidence and culled out certain guidelines. A long debate is well known in the apex courtroom on the certification under section 65-B of the

14 Communication device is defined under section 2(1)(ha) of the Information Technology Act, 2000, which means, “means cell phones, personal digital assistance or combination of both or any other device used to communicate, send or transmit any text, video, audio or image”.

15 In *Nilesh Dinkar Paradkar v. State of Maharashtra* (2011) 4 SCC 143 : 2011 SCC OnLine SC 460, the Supreme Court held that, “In our opinion, the evidence of voice identification is at best suspect, if not, wholly unreliable. Accurate voice identification is much more difficult than visual identification. It is prone to such extensive and sophisticated tampering, doctoring and editing that the reality can be completely replaced by fiction. Therefore, the courts have to be extremely cautious in basing a conviction purely on the evidence of voice identification” (para 31). The Law Commission of India, in the 87th Report (1980) titled “Identification of Prisoners Act, 1920”, has also recommended for suitable legislation to empower amend section 5 of the Identification of Prisoners Act, 1920 specifically empowering Judicial Magistrate to compel an accused to give sample of his voice. The Law Commission observed, “A voice print is a visual recording of voice. It mainly depends on the position of “formants”. These are concentrates of sound energy at a given frequency. It is stated that their position in the “frequency domain” is unique to each speaker. Voice prints resemble finger prints, in that each person has a distinctive voice with characteristic features dictated by vocal cavities and articulates”. Also see: *Nilesh Dinkar Paradkar v. State of Maharashtra*, (2011) 4 SCC 143 : 2011 SCC OnLine SC 460 at page 154, at para 32; *Ziyauddin Burhanuddin Bukhari v. Brijmohan Ramdass Mehra* (1976) 2 SCC 17; *Ram Singh v. Col. Ram Singh* 1985 Supp SCC 611; *Mahesh Babu Lohar v. State of Maharashtra* (2020) SCC OnLine Bom 9281 at para 7; and *Vijay Krishan Rao v. State of Maharashtra* (2020) SCC OnLine Bom 7877 at para 7.

16 *Mahendra N. Pardeshv. State of Maharashtra* (2020) SCC OnLine Bom 7873 at para 24.

Indian Evidence Act, 1872.¹⁷ The apex court in *Arjun Panditrao Khotkar* has also observed that “Appropriate rules and directions should be framed in exercise of the Information Technology Act, by exercising powers such as in Section 67C, and also framing suitable rules for the retention of data involved in the trial of offences, their segregation, rules of a chain of custody, stamping and record maintenance, for the entire duration of trials and appeals, and also in regard to preservation of the meta data to avoid corruption. Likewise, appropriate rules for preservation, retrieval and production of electronic record, should be framed as indicated earlier, after considering the report of the Committee constituted by the Chief Justice’s Conference in April, 2016.”¹⁸ The Supreme Court in *P. Gopalkrishnan v. State of Kerala*¹⁹ hold that:

...the contents of the memory card/pen-drive being electronic record must be regarded as a document. If the prosecution is relying on the same, ordinarily, the accused must be given a cloned copy thereof to enable him/her to present an effective defence during the trial. However, in cases involving issues such as of privacy of the complainant/witness or his/her identity, the Court may be justified in providing only inspection thereof to the accused and his/her lawyer or expert for presenting effective defence during the trial. The court may issue suitable directions to balance the interests of both sides.

The lackadaisical approach during investigation

Since the beginning of annual surveys on Forensic Law, it has been consistently observed that investigating agencies are usually reluctant to collect forensic samples due to varied reasons. They are more dependent and prefer recording oral statements of the victim, witnesses and the accused. It is an established global truth, beyond any reasonable suspicion, that oral testimony, including that of ocular witness, is susceptible to manipulations resulting in miscarriage of justice.²⁰ Innocence Project is the glaring example supporting this observation.²¹ Thus, corroboration of facts by forensic inputs is the best alternative to assist the judicial process.

17 In *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal* (2020) 7 SCC 1 : (2020) 4 SCC (Civ) 1 : (2020) 4 SCC (Cri) 1 : (2020) 2 SCC (L&S) 587 : 2020 SCC OnLine SC 571, the apex court at para 73 held that certificate under section 65B (4) is mandatory to produce at appropriate stage, only when digital device storing ‘original information’ (primary evidence) is not produced in the court; *Anvar P.V. v. P.K. Basheer* 3 (2014) 10 SCC 473; *Shafhi Mohammad v. State of Himachal Pradesh* (2018) 2 SCC 801. Also see: Abhishek Bagga, “Resolving the Conundrum: Section 65B of the Indian Evidence Act, 1872” (August, 2020). Available at: <https://www.mondaq.com/india/trials-appeals-compensation/979312/resolving-the-conundrum-section-65b-of-the-indian-evidence-act-1872> (last visited on December 13, 2021)

18 *Id.* at para 73.4.

19 (2020) 9 SCC 161 at para 50 : 2019 SCC OnLine SC 1532.

20 GK Goswami and Siddhartha Goswami, “Taking Injustice Seriously: Proving Innocence of Wrongly Convicted Persons” in Dilip Ukey, Chirag Bayan and Melissa Walavalkar (eds.) *Revisiting Reforms in the Criminal Justice System in India* 34-50 (Thomson Reuters, Legal: South Asia, 2020).

21 Connors Edward, Lundregan Thomas, Miller Neal and Tom McEwen, *The DNA “Wars” Are Over*, Excerpted from *Convicted by Juries, Exonerated by Science: A Case Studies in the Use of DNA Evidence to Establish Innocence After Trial* (National Institute of Justice, 1996).

The Indian Supreme Court has *suo motu* registered a writ petition to review the overall status of handling rape incidents in India.²² In the *Lada Devi* case,²³ the High Court of Rajasthan has also referred to the said petition of the apex court and expressed anguish on the casual approach of police in handling the instant case of child sexual abuse. Patna high court has dismissed a reference of the death penalty, and pointed out several lacunae in the collection of evidence such as failure of investigating officer for not conducting DNA, as clinching evidence to link accused with the crime, despite various artefacts were available at the crime scene of the murder.²⁴ The casual mindset of actors in the criminal justice system needs attention and must be dealt with with iron hands.

III MEDICO-LEGAL EXAMINATION IN RAPE CASE AND STATEMENT BEFORE MAGISTRATE

Medical examination of the subject may be useful for the determination of criminal liability. The medical expert may determine injuries, cause of death, poisoning, age, insanity, penile erection etc. to help the judge for reaching the bottom of the truth. An accused of rape must be examined by a registered medical practitioner as prescribed under section 53A of the procedure code. 'Examination' includes a collection of biological samples for DNA profiling. The similar provisions for medical tests of the rape victim and collection of her DNA sample by the medical practitioner are kept under section 164A of the procedure code. The consent is not required for an accused under 53A; but free and informed consent of a major victim is mandatory. However if a rape survivor is a minor, then the consent of her parent or legal guardian is a mandatory requirement under section 164A. In 2020, various issues related to medico-legal test and recording the statement of prosecutrix before magistrate have been deliberated by the judiciary. In a rape case, High Court of Gujarat appositely observed:²⁵

The two-finger test is unconstitutional. It violates the right of the victim to privacy, physical and mental integrity and dignity. Thus, this test, even if the report is affirmative, cannot *ipso facto*, give rise to a presumption of consent. In view of the International Covenant on Economic, Social, and Cultural Rights, 1966 and the United Nations Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power, 1985, the victim of sexual assault are entitled to legal

22 *In Re: Assessment of the Criminal Justice System in Response to Sexual Offences* 2019 SCC OnLine SC 1654 at para 88. Also see: *Anokhilal v. State of Madhya Pradesh* 2019 SCC OnLine SC 1637.

23 *Lada Devi v. State of Rajasthan* 2020 SCC OnLine Raj 1809 at para 10 : (2021) 1 WLC (UC) 301.

24 *State of Bihar v. Niranjana* 2020 SCC OnLine Pat 2112, at paras 86 -97 : (2021) 1 BLJ 215 (PHC). Also see: *Gajanand v. State through PP* 2020 SCC OnLine Raj 1175, at para 48 : (2020) 216 AIC 906 : (2021) 1 WLC 42.

25 *State of Gujarat v. RameshchandraRamabhai* 2020 SCC OnLineGuj 114 at para 30. Also see: *Lilu Rajesh v. State of Haryana* (2013) 14 SCC 643 at paras 7 and 14 : (2014) 4 SCC (Cri) 311 : 2013 SCC OnLine SC 337.

recourse that does not traumatize them or violate their physical or mental integrity and dignity. They are also entitled to medical procedures conducted in a manner that respects their right to consent. Medical procedures should not be carried out in a manner that constitutes cruel, inhuman, or degrading treatment and health should be of paramount consideration while dealing with gender-based violence. The State is under an obligation to make such services available to survivors of sexual violence. Proper measures should be taken to ensure their safety and there should be no arbitrary or unlawful interference with their privacy.

The High Court of Karnataka has referred to Joshi's Medical Jurisprudence and Toxicology where it deliberates that "Rape is a legal term and not a diagnosis to be made by the medical officer treating the victim". The only statement that can be made by the medical officer is that there is evidence of recent sexual activity. Whether the rape has occurred or not is a "legal conclusion, not a medical one".²⁶ In rape allegation, recording of statement of the prosecutrix under section 164 Cr. PC is essential, and section 164(5A) impose binding on the judicial magistrate to record the statement of a victim of sexual offences. The apex court has directed the magistrates to re-record such statements, in the case investigating officer so requested.²⁷

IV DNA IN COURTROOM

In nearly last three decades, the Indian judiciary had extensively used DNA both for judging civil and criminal matters. DNA has multi-pronged applications in the administration of justice applicable both to prove guilt as well as the innocence of an accused. However, considering the volume of crime in India, usage of DNA is far from satisfaction even in heinous crimes such as rape and other bodily offences.²⁸ It is comprehended during the extant survey that the courts have strengthened DNA jurisprudence on various connected issues.

DNA in crime investigation

Serological analysis helps the court to determine whether questioned blood sample belongs to a human,²⁹ however, DNA profile is a more advanced technology for human identification with greater precision. The spectacular strength of DNA in human identification has been globally exploited by the judicial system. "The science of DNA profiling has been so perfected that unless the procedure is compromised, the accuracy of result cannot be doubted. When the DNA profiling is done properly,

26 *Nagesh v. State of Karnataka* 2020 SCC OnLine Kar 1537 at para 56.

27 *Jogendra Nahak v. State of Orissa* (2000) 1 SCC 272. Also see: *Asha Gujar v. State of Rajasthan* 2020 SCC OnLine Raj 2075 at para 7 : (2020) 3 RLW 2092; *Lada Devi v. State of Rajasthan* 2020 SCC OnLine Raj 1809 at para 17 : (2021) 1 WLC (UC) 301.

28 GK Goswami, *Role of Forensics in Strengthening child right under the POCSO Act, 2012*, Dissertation for fulfilment of DSC (Post-doctoral study), the National Forensic Sciences University, Gandhinagar, India (2020). Available at: <http://hdl.handle.net/10603/308994> (last visited on Dec 13, 2021)

29 *Nagesh v. State of Karnataka* 2020 SCC OnLine Kar 1537 at para 52; and *Dorr v. State represented by the Inspector of Police* 2020 SCC OnLine Kar 1537 at para 15.

its results are infallible”, observed the Tripura high court.³⁰ High Court Karnataka has deliberated upon the strength of DNA in the judicial system.³¹ Uttaranchal high court has succinctly opined the evidentiary strength of DNA by observing:³²

- (i) Expert opinion should be respected.
- (ii) Court should not ordinarily substitute the opinion of the expert merely based on collecting some passages from other textbooks without seeking an explanation of the expert on those texts.
- (iii) The result of a genuine DNA test is scientifically accurate.
- (iv) Precautions are required to be taken to ensure proper DNA examination.
- (v) The DNA report deserves to be accepted unless dented and for non-acceptance of the same, it has to be established that there have been no quality control or quality assurance. If the sample is proper and if there is no evidence of tampering with the samples, the DNA test report is to be accepted.
- (vi) The Court should not venture on its own to discredit the opinion of an expert on the basis of certain texts and books, without putting these texts and books to the expert and taking his opinion thereon.
- (vii) If questioned, the Court may examine the methodology or data collection or the process involved in the DNA examination. The questioning should begin with the expert.
- (viii) The expert opinion and its basis are relevant to be accepted without analysis unless it is demonstrated that the report is dented.

It is a cardinal rule that if DNA report is negative, in absence of other evidence otherwise to prove the guilt, it may form the basis for exoneration.³³ However, if a DNA test is positive, it cannot be the sole criterion for conviction, unless there is no iota of doubt in a criminal case. The survey revealed that during 2020, despite the COVID pandemic, several criminal matters were decided by the appellate courts where DNA played a critical role in the quest for truth.³⁴

Role of forensics in rape cases.

The testimony of a victim of rape is at par with the injured person.³⁵ Earlier the apex court observed that “the prosecutrix stands at a higher pedestal than an injured

30 *Supra* note 7 at para 29.

31 *Ramu v. State of Karnataka* Crim. Appeal No. 246/2014, Karnataka High Court, decided on October 21, 2020. Also see: *Patan Mohammad Rafi v. State of Andhra Pradesh* 2020 SCC OnLine AP 592 : (2020) 2 ALD (Cri) 930.

32 *State of Uttarakhand v. Jai Prakash* 2020 SCC OnLine Utt 10 at para 47 : 2021 Cri LJ 2994.

33 *Supra* note 7. Also see: *Jayantibhai Somabhai Khant v. State of Gujarat* (2015) Cri. LJ 3209.

34 *Sanjay Namdeo Jadhav v. State of Maharashtra* 2020 SCC OnLine Bom 5919 at para 29 : (2021) 1 AIR Bom R (Cri) 152; *Osban Fernandes v. State of Maharashtra* 2020 SCC Bom OnLine 845 at para 100 : (2021) 3 AIR Bom R (Cri) 404; *Tukaram Rau Jadhav v. State of Maharashtra* 2020 SCC OnLine Bom 979 at para 37 : (2021) 1 Bom CR (Cri) 151; *Sanjay Namdeo Jadhav v. State of Maharashtra* 2020 SCC Bom OnLine 5919 at para 30 : (2021) 1 AIR Bom R (Cri) 152;

35 *Faiyaz v. State of Maharashtra* 2020 SCC OnLine Bom 3561 at para 11.

witness as she suffers from emotional injury”.³⁶ In a rape incident, detection of semen or sperm on the body of the prosecutrix or her clothes may not be *sine qua non* to conviction provided other evidence *qua* bodily injuries are credible. The German portion of the judgment of High Court Delhi stressed that “the absence of semen cannot discard the version of the prosecution because penetration with or without emission of semen is sufficient to make out an offence of rape”.³⁷ DNA has strengthened the evidence for conviction in the rape and other bodily offences.³⁸ DNA also help to establish rape if the survivor is a toddler who is unable to speak or the victim is killed.³⁹ The experience of annual survey of previous years exposed that minor girls are repeated victims of animal lust of their stepfathers especially when mother has died or was outside the home.⁴⁰ The Karnataka high court has referred⁴¹ detailed observations of the apex court of India on mixed samples in rape incidents dealt through DNA:⁴²

The DNA of the victim and the perpetrator are often mixed. Traditional DNA analysis techniques like “autosomal- STR” are not possible in such cases. Y-STR method provides a unique way of isolating only the male DNA by comparing the Y- Chromosome which is found only in males. It is no longer a matter of scientific debate that Y-STR screening is manifestly useful for corroboration in sexual assault cases and it can be well used as exculpatory evidence and is extensively relied upon in

36 *Mohd. Imran Khan v. State (NCT of Delhi)* (2011) 10 SCC 192 at para 22.

37 *Lal Mohammed v. State (NCT of Delhi)* 2020 SCC OnLine Del 402 at para 33 : (2020) 267 DLT 15. Also see: *Wahid Khan v. State of Madhya Pradesh* (2010) 2 SCC 9 at para 19 : (2010) 1 SCC (Cri) 1208.

38 *Rais v. State (NCT of Delhi)* 2020 SCC OnLine Del 2; *Dhari Kumar Jamatia v. State of Tripura* 2020 SCC OnLine Tri 238; *Mouni v. State of Uttar Pradesh* 2020 SCC OnLine All 584; *Sudam Ramnath Shelke v. State of Maharashtra* 2020 SCC OnLine Bom 1605 at para 27 : (2021) 1 Bom CR (Cri) 412; *Sabhajeet Maurya v. State (NCT of Delhi)* 2020 SCC OnLine Del 1525 at para 32 : (2021) 276 DLT 439 : (2021) 1 RCR (Cri) 248; *Vinod Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 4076 at para 4; *Balwinder Paul v. State of Himachal Pradesh* 2020 SCC OnLine HP 493 at para 10; *Sunil Kumar v. State of Kerala* 2020 SCC OnLine Ker 11010 at para 18 : 2020 Cri LJ 3409; *Deepak v. State of Madhya Pradesh* 2020 SCC OnLine MP 313 at para 17 : 2020 Cri LJ 2076; *Azhar alias Azharuddin alias Mohd. Azharuddin v. State of Karnataka* 2020 SCC OnLine Kar 500 at para 7.

39 *Shatrughna Baban Meshram v. State of Maharashtra* 2020 SCC OnLine SC 901 : (2021) 1 SCC 596. The apex court has extensively deliberated on circumstantial evidence and awarded death penalty in cases of killing the victims below 16 years of age after rape.

40 *Sabhajeet Maurya v. State (NCT of Delhi)* 2020 SCC OnLine Del 1525 at para 32 : (2021) 276 DLT 439 : (2021) 1 RCR (Cri) 248. In this case father was infected with HIV-AIDS during the period of incident. In India, there is no specific legal provisions to punish for spreading communicable disease. The high court, at para 86, has dealt with the legislative provisions on this issue prevailing among various jurisdictions.

41 *Supra* note 31.

42 *Ravi v. State of Maharashtra* (2019) 9 SCC 622 at para 36 : (2019) 3 SCC (Cri) 723 : 2019 SCC OnLine SC 1288. Also see: Justice Ming W. Chin (Retd.), Michael Chamberlain, Amy Rojas, Lance Gima, “Forensic DNA Evidence: Science and the law” (Thomas Reuters/The Rutter Group: Toronto, 2015); and *State of Gujarat v. Jayantibhai Somabhai Khant* (2009) Cri.LJ 2888.

various jurisdictions throughout the world. Science and Researches have emphatically established that chances of degradation of the 'Loci' in samples are lesser by this method and it can be more effective than other traditional methods of DNA analysis. Although Y-STR does not distinguish between the males of the same lineage, it can, nevertheless, may be used as strong circumstantial evidence to support the prosecution case. Y-STR techniques of DNA analysis are both regularly used in various jurisdictions for the identification of offenders in cases of sexual assault and also as a method to identify suspects in unsolved cases. Considering the perfect match of the samples and there being nothing to discredit the Y-STR analysis for detection and objective confirmation of child sexual abuse.

Forensic management of rape-related pregnancies

The right of a victim of rape makes the reproductive choice of terminating the foetus heavily outweighs the right of the child in the womb to be born even where the pregnancy is at an advanced stage.⁴³Rajasthan high court has issued extensive directions to the state government with regard to pregnant prosecutrix of rape:⁴⁴

- (i) that the State Government shall frame suitable guidelines to ensure that the victims of rape who became pregnant by sexual assault are provided timely and legal as well as medical assistance so as to ensure that they can exercise their reproductive choice in terms of the MTP Act;
- (ii) that no sooner, the factum of a victim of sexual assault has become pregnant is reported, the Medical Officer/ShO of the police station concerned, shall forthwith forward a report thereof to the Full Time Secretary, District Legal Service Authority concerned who, in turn, shall, approach the victim with a female counsellor and sensitise her and her guardians about the remedies under the MTP Act;
- (iii) in case, an application for termination of pregnancy is submitted by the guardian of the victim to the appropriate authority within the stipulated period of 20 weeks as provided by the MTP Act, the same shall be processed forthwith and a suitable decision shall be taken thereupon within three days from the date of submission thereof;
- (iv) in case, the application seeking termination of pregnancy is filed before a competent court then, such court shall forthwith summon the victim's guardian and record his/her consent which shall be deemed to be final. There shall be no requirement of intervention by police in the matter of consent seeking for termination of pregnancy;
- (v) in case, where the threshold of 20 weeks gestation has been crossed, the Full Time Secretary, District Legal Services Authority shall assist the

43 *State of Rajasthan v. S. (Name withheld)* 2020 SCC OnLine Raj 860 at para 9 : 2 RLW 1319 : AIR 2020 Raj 97;

44 *State of Rajasthan v. S (Name withheld)* 2020 SCC OnLine Raj 860 at para 6 : (2020) 2 RLW 1319 : AIR 2020 Raj 97.

victim and her guardians if they so desire for approaching the High Court to file a writ petition seeking direction for termination of pregnancy in light of decisions of Hon'ble the Supreme Court and of this Court.

- (vi) the identity of the victim shall not be disclosed at any stage during this process.

DNA has proved both guilt⁴⁵ and innocence⁴⁶ of the accused of rape by conducting a DNA test of the foetus or neonatal to link with his biological fatherhood. However, the DNA test may sometimes be deceptive, if the victim has a sexual liaison with other person then accused at the time of the alleged rape incident. The constitutional courts have also allowed termination of rape-related pregnancies, and also ordered to preserve the DNA of the foetus for matching.⁴⁷ Despite pregnancy, investigators are either reluctant or ignorant to conduct a DNA test of the foetus or the child born related to the alleged rape.⁴⁸ In absence of a DNA test of the foetus, the accused get an advantage and may get exonerated since other conventional evidence to prove rape may not be clinching due to inordinate delay in reporting of the incident.⁴⁹

During the annual survey, it is observed that sexual abuse of mentally challenged persons is of major concern since the female victims are unable to report as they may be inept or unable to understand the nuance of sexual acts. These victims are legally incompetent to give consent for sexual activity. Family members or caregivers normally recognize such incidences once the pregnancy bulge gets visible. The debate to consider this ilk of sexual exploitation as statutory rape is of significance and the apex court in social interest litigation has said that for re-defining child in order to bring these victims under the folder of the POCSO Act, 2012 is the subject matter of the legislature.⁵⁰

45 *Jamir Ali v. State of Tripura* 2020 SCC OnLine Tri 296 at para 44; *Faiyaz v. State of Maharashtra* 2020 SCC OnLine Bom 3561; *State of Maharashtra v. Vishnu Tulshiram Karwate* 2020 SCC OnLine Bom 3934 at para 12 : (2021) Bom CR (Cri) 192; *Guddu Ram v. State of Himachal Pradesh* 2020 SCC OnLine HP 4184 at para 3; *Thankappan P.K. v. State of Kerala* 2020 SCC OnLine Ker 2587 at para 4 : (2020) 4 KLT 709 : (2020) 212 AIC 350 : (2020) 3 KLJ 950;

46 *Ses Ram v. State of Himachal Pradesh* 2020 SCC OnLine HP 3881 at para 6; *Siva v. State represented by Inspector of Police, Tamil Nadu* 2020 SCC OnLine Mad 1359 at para 26 : 2020 Cri LJ 4332;

47 *K, through her father v. State of Chhattisgarh* 2020 SCC OnLine Chh 2163 at para 10 : 2020 Cri LJ (NOC 395) 120; and *ABC v. Union of India* 2020 SCC OnLine Ker 1585 at para 9.

48 *Nirud Phukan v. State of Assam* 2019 SCC OnLine Gau 5922 at para 17 : (2020) 6 Gau LR 490.

49 *Pintu Mondol v. State of West Bengal* 2020 SCC OnLine Cal 1508 at para 22.

50 *Ms. Eera through D. Manjula Krippendorf v. State (Govt. of NCT of Delhi)* (2017) 15 SCC 133 : (2017) 3 MLJ (Cri) 452. Also see: GK Goswami, "Forensic Law 2017" Vol. LIII *Annual Survey of Indian Law* 383-411 (2019); and GK Goswami, DSc dissertation titled "Role of Forensics in Strengthening Child Rights under the POCSO Act, 2012", National Forensic Sciences University, Gandhi Nagar (2020). (Available at: <http://hdl.handle.net/10603/308994> (last visited on December 13, 2021).

In *Chaman Lal v. State of Himachal Pradesh*,⁵¹ the apex court upheld the conviction order of the high court since the DNA proved the fatherhood of the accused responsible for the sexual exploitation of a 19 years old girl. She was mentally challenged and pregnancy was detected after a long delay. She gave birth to a child, and DNA proved that the victim and the accused are the biological parents of the child. The High Court of Orissa has directed the state government to immediately pay an exgratia sum of rupees five lakh to the impregnated victim of rape who was mentally and physically challenged.⁵² The court permitted for termination of pregnancy and directed the doctors to take a DNA sample of the foetus for forensic examination.⁵³ “When a pregnant mother is required for examination by a Medical Board for the purpose of termination, it must include apart from Obstetrics and Gynaecology, experts from (i) Paediatrics, (ii) Psychiatry/Psychology, (iii) Radiology/Sonography, (iv) from the field of Medicine with inclusion of tests involving foetus also Mental Health Care Act, 2017” the high court directed the government.⁵⁴

Impact of negative or inconclusive DNA report

DNA has been bestowed high credit to award acquittal in appeals particularly in allegations of rape if DNA does not match with the accused.⁵⁵ However, in a few cases, despite negative DNA reports, based on other clinching evidence like bodily injuries etc. conviction has been ratified by the appellate courts.⁵⁶ Many times due to various reasons such as the insufficient quantity of biological samples or its degradation the DNA report may be inclusive. The High Court of Kerala has observed that an inconclusive DNA report will not in any way affect the prosecution case.⁵⁷ Then the case must be decided based on the merit of other evidence.

Paternity determination by DNA

Paternity remained disputed in umpteen number of cases both for criminal, and civil disputes of varied nature such as contesting infidelity of wife to build a ground for divorce suit, to contest against maintenance petition, inheritance disputes. DNA as evidence is used for various body offences but without specific mention in the Indian procedural laws. The provisions enshrined under sections 53-A and 164A of the criminal procedure code are especially applicable for rape incidents, enabling a medical expert to collect biological samples of an accused and the victim respectively.

51 2020 SCC OnLine SC 988 at para 2.

52 *Runa Majhi v. State of Odisha* 2020 SCC OnLine Ori 677 at para 23 (I)(A) : (2021) 131 CLT 171.

53 *Id.* at para 23 (I)(ii).

54 *Id.* at para 23 (I)(ix).

55 *State (NCT of Delhi) v. Saan Mohd.* 2020 SCC OnLine Del 1726; *Bipul v. State of Tripura* 2020 SCC OnLine Tri 409 at para 62; *Girish Shirodkar v. State of Maharashtra* 2020 SCC OnLine Bom 898 at para 31 : (2021) 1 AIR Bom R (Cri) 193; *Azhar alias Azharuddin alias Mohd. Azharuddin v. State of Karnataka* 2020 SCC OnLine Kar 500 at para 7; and *Bipul v. State of Tripura* 2020 SCC OnLine Tri 409 at para 62;

56 *Naresh v. State (NCT of Delhi)* 2020 SCC OnLine Del 38.

57 *Subhash v. State of Kerala* 2020 SCC OnLine Ker 3560 at para 50.

The issue of consent for collecting bodily DNA samples in rape has been discussed in pre paras.

DNA has proved its spectacular forensic credence for the identification of biological parents of a child with greater credence. Further, there is no specific provision in Indian procedural laws for collecting DNA samples for civil dispute resolution. Consequently, judicial discretion plays a vital for ordering DNA tests. In absence of specific law, court verdicts lack the element of judicial consistency leading to the inherent legal conundrum. In a plethora of judgments various guidelines were culled out by the constitutional courts with regard to permitting DNA tests to ascertain paternity, however, often these guidelines are contradictory.⁵⁸ There is a paradigm shift in the judicial approach to conducting DNA for paternity determination beginning from *Goutam Kundu*⁵⁹ to *Nandlal Wasudeo Badwaik*⁶⁰ and *Dipanwita Roy*⁶¹ cases. It is pertinent to mention that DNA determines the genetic composition of the child through parents, but section 112 of the Indian Evidence Act, 1872 necessitates for valid marriage between the parents and does not recognise the biology behind childbirth. The evident conflict and conundrum in prevailing paternity law and science in paternity determination has been succinctly penned by the author in his seminal work.⁶²

The disgruntled husbands also demand DNA led paternity determination of child in courts to prove infidelity of their wives. On similar grounds, the claim of estranged wife and children for maintenance may also be contested by the husband demanding for a DNA test to establish paternity outside marriage.⁶³ In absence of legal clarity, courts continue to prefer either section 112 of the Act, 1872 or a DNA test. Madhya Pradesh high court by placing reliance on the doctrine of 'eminent need', has refused

58 GK Goswami and Siddhartha Goswami, "Three Decades of DNA Evidence: Judicial Perspective and Future Challenges in India" in HIRAK RANJAN DAS ET AL. (EDS.) *DNA FINGERPRINTING: ADVANCEMENTS AND FUTURE ENDEAVOURS* 181-205 (Springer Nature: Singapore, 2018). Also see: GK Goswami, "Forensic law" *L ASIL* 654 (2015); and GK Goswami, "Forensic Law" *LI ASIL* 608 (2016).

59 In *Gautam Kundu v. State of West Bengal* (1993) 3 SCC 418 : 1993 SCC (Cri) 928, at para 26, the apex court has culled out five guidelines for conducting DNA test for paternity determination: (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 Section 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; (5) No one can be compelled to give sample of blood for analysis.

60 *Nandlal Wasudeo Badwaik v. Lata Nandlal Badwaik* (2014) 2 SCC 576 2003 3 SCR 106 : 2003 (2) UJ 870 SC.

61 *Dipanwita Roy v. Romobroto Roy* (2015) 1 SCC 365 : (2015) 1 SCC (Cri) 683 : (2015) 1 SCC (Civ) 495 : 2014 SCC OnLine SC 831. Also see: *Jitendra Singh Kaurav v. Rajkumari Kaurav* 2019 (3) MPLJ 150. Non-access to wife at time of conceiving a child, considered 'eminent ground' for ordering the DNA test for paternity determination.

62 *Supra* note 58.

63 *K. Harikrishnan v. G. Sumathi* 2020 SCC OnLine Mad 14560 at para 2.3.

to conduct DNA for paternity in a dispute related to property devolution.⁶⁴ The Kerala High Court has placed reliance on DNA to determine the paternity of a child despite the fact that marriage was not challenged.⁶⁵ Sometimes, courts permit DNA tests for ascertaining paternity if the wife is willing to offer to undergo the test.⁶⁶

Using DNA for dead body identification

DNA has proved its potential for human identification required for various purposes especially if a dead body otherwise may not be identified by other mundane means.⁶⁷ An inconclusive DNA report due to highly degraded bodily samples may not impede the process of identification of a dead person, provided other available evidence is steadfast.⁶⁸ Many times investigation agency fails to conduct DNA or other forensic tests like skull superimposition *etc.*, for human identification of dead bodies with greater precision.⁶⁹ Such practice may frustrate the very purpose of the investigation. The higher judiciary has also raised questions on prosecution for not conducting DNA especially for the identification of dead bodies.⁷⁰

Court response on non-conducting DNA profile

The police suffers with the evident tendency for conducting DNA in rape and other crimes apt for DNA and other scientific examinations.⁷¹ On non-conducting DNA test in sexual offences, poignantly the High Court of Himachal Pradesh has observed, “Section 53 of the Cr PC mandates about DNA proofing. . . . It is unfortunate that when scientific techniques have advanced so well and the DNA reports have

- 64 *Ajay Singh v. State of Madhya Pradesh* 2020 SCC OnLine MP 449 at para 7 : AIR 2020 (NOC 795) 259. Also see: *Prasad Jena v. Convenor Secretary, Orissa State Commission for Women*(2010) 8 SCC 633 : (2010) 3 SCC (Civ) 501 : (2010) 3 SCC (Cri) 1053 : 2020 SCC OnLine SC 826.
- 65 *Achuthan Pillai v. Deepa* 2020 SCC OnLine Ker 15905. Also see: *Gopalakrishnan v. Rethnamma* 2020 SCC OnLine Ker 8663 at para 25;
- 66 *Manas Kumar Kar v. Binaya Mishra* 2020 SCC OnLine Ori 8 : AIR 2020 Ori 35 : (2020) 129 CLT 945.
- 67 *Labiram v. State of Chhattisgarh* 2020 SCC OnLineChh 1173; *Ramesh Chaudhary v. State of Himachal Pradesh* 2020 SCC OnLine HP 3041 at paras 2 & 8; *Ravi Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 2877 3041 at para 4; *Lebiram v. State of Chhattisgarh* 2020 SCC OnLineChh 1173 at para 4; *Jiarul Haque v. State of Assam* 2020 SCC OnLineGau 4192 at para 19 ; (2020) 4 Gau LR 431; *HimmatbjaiNaranbjai Mehta v. State of Gujarat* 2020 SCC OnLineGuj 1920 at para 5; *Ravi Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 2877 at para 4; *State of Karnataka v. SijuKijrian* 2020 SCC OnLine Kar 401 at para 45; *Binu v. State of Kerala* 2020 SCC OnLine Ker 7628 at para 20; and *Amarjit Reang v. State of Tripura* 2020 SCC OnLine Tri 338 at para 8.
- 68 *Cyrone Rodrigue v. State of Maharashtra* 2020 SCC OnLine Bom 666 at para 14 : (2020) 2 AIR Bom R (Cri) 234.
- 69 *Pradeep Horo v. State of Maharashtra* 2020 SCC OnLine Bom 882 at para 13 : (2020) 3 AIR Bom R (Cri) 46; *Amol Jaywant Pawar v. State of Maharashtra* 2020 SCC OnLine Bom 6411 at para 11; and *Mohan Tripura v. State of Tripura* 2020 SCC OnLine Tri 441 at para 6.
- 70 *Anthony Fernandes v. Police Inspector* 2020 SCC OnLine Bom 189 at para 9 : (2021) 1 AIR Bom R (Cri) 859.
- 71 *Dhirendra v. State of Maharashtra* 2020 SCC OnLine Bom 477 at para 13; and *Shaila Vijay Kamble v. State of Maharashtra* 2020 SCC OnLine Bom 5925 at para 48 : (2020) 1 AIR Bom R (Cri) 116;

been accepted by the Courts in India, still no request was made for DNA proofing”.⁷² The High Court of Chhattisgarh has dismissed the State appeal against acquittal in a murder case by observing that the prosecution has failed to conduct DNA for proving that child born to a female when she was not living with her husband, and newborn was burnt by the female accused of the family to get rid of public shame.⁷³ In a plethora of cases, the courts have recorded observations for not conducting DNA by the prosecution in rape cases including those against children.⁷⁴ The courts may consider to order punitive action against erring officers involved in evidence collection for not conforming to legal provisions for conducting DNA expressly for sexual offences.

IV COURTS RESPONSE ON NON-DNA FORENSIC TOOLS

In general, the battery of forensic evidence is advised to brace corroboration to prove or disprove a fact in the pursuit of truth. A brief description of legal issues of forensic significance pertaining to various scientific evidence other than DNA deliberated by the higher judiciary in numerous judgments have been identified during the survey and succinctly described below.

Corroboration through multiple forensic tools

Bombay high court observed that “There is corroboration on material particulars. It is well settled that corroboration is required only on material particulars and it is not necessary that there should be corroboration on every single aspect.”⁷⁵ In *Patan Mohammad Rafi v. State of Andhra Pradesh*,⁷⁶ the accused aged 25 was held guilty for committing rape and murder of a 5 years old minor girl based on circumstantial evidence and awarded the death penalty. The circumstantial evidence includes CCTV footage, last seen together and matching DNA profiling.

Medico-legal test

The High Court of Allahabad in *Ram Ladaite v. State of U.P.*⁷⁷ observed that undue delay in conducting medico-legal exam under section 53-A Cr PC of the accused of rape will lose its efficacy. Due to alleged political pressure, the police delayed lodging an FIR of rape with a 15 years old girl belonging to the scheduled caste community. In this case, the accused argued that his right to prove innocence was denied by not conducting his medical examination. The right of the victim and the accused to get the case investigated with a scientific temper is very essential for ensuring flawless delivery of justice.

72 *Jai Pal v. State of Himachal Pradesh* 2020 SCC OnLine HP 2250 at para 42; *Suranjoy Reang v. State of Tripura* 2020 SCC OnLine Tri 440 at para 7 : 2021 Cr LJ (NOC 22) 7; and *Dhirendra alia Mohni alias Chhotu Gunanarayan v. State of Maharashtra* 2020 SCC OnLine Bom 477 at para 13;

73 *State of Chhattisgarh v. Tikeshwari Sahu* 2020 SCC OnLineChh 2380.

74 *State of Odisha v. Laba* 2020 SCC OnLine Ori 785, at para 13(iv); and *Abed Ali Biswas v. State of West Bengal* 2020 SCC OnLine Cal 978 at para 17.

75 *Maria v. State of Goa* 2020 SCC OnLine Bom 11 at para 26 : (2021) 3 AIR Bom R (Cri).

76 2020 SCC OnLine AP 592 : (2020) 2 ALD (Cri) 930.

77 2020 SCC OnLine All 918 : (2020) 113 SCC 33.

Voice and video matching

Voice comparison is an important piece of evidence to evade any doubt on the involvement of a suspect in the commission of offences such as demanding bribe or ransom, a threat to individuals, hatching conspiracy for organized crimes like waging war against the state, terror activities or any other organized crime etc. by using the phone. Voice and videos are important to establish the identity of culprits if the crime is committed in a crowd.⁷⁸ Many times, the investigating agency miss to get voice samples recorded for the purpose of matching, which may frustrate the very purpose of evidence.⁷⁹ The accused or suspect many times refuse to submit voice samples, due to a lack of explicit legal provisions to compel a suspect to give a voice sample for matching.⁸⁰ In *Natvarlal Amarshibhai Devani v. State of Gujarat*,⁸¹ the high court had deliberated the question of furnishing voice samples by the accused for voice Spectrograph test. It was held that furnishing of voice samples cannot be included in the term “examination” or “such other test” as explained in section 53 of the Code. In 2019, the apex court, after invoking extraordinary power under article 142 of the Indian Constitution, has empowered the judicial Magistrate to direct the suspect to furnish a voice sample for the purpose of matching.⁸² On a bail petition, High Court of Allahabad has refused for granting bail since the applicant accused has refused to furnish a voice sample for forensic matching in a murder case despite a long stay on incarceration.⁸³

Procedural probity is a vital consideration since the lapses in sampling or analysis involved in forensics are normally challenged by the defendants in the courtrooms. Despite the expert opinion of voice matching of the accused with the recorded conversation, the Bombay high court has reversed the conviction order of the trial court in a corruption case on the basis of evident procedural lapses in the collection

78 *Sharjeel Imam v. State (NCT of Delhi)* 2020 SCC OnLine Del 743 at para 70.

79 *Ravi Bhimappa Avaradiv. State of Karnataka* 2020 SCC OnLine Kar 547 at para 30.

80 *Pawan Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 1893 at para 5.

81 2017 Cr.L.J. 1911 : CDJ 2017 GHC 28.

82 *Ritesh Sinha v. State of Uttar Pradesh* (2019) 8 SCC 1 at para 27; (2019) 3 SCC (Cri) 252 : 2019 SCC OnLine SC 959. The apex court construed that “... we unhesitatingly take the view that until explicit provisions are engrafted in the Code of Criminal Procedure by Parliament, a Judicial Magistrate must be conceded the power to order a person to give a sample of his voice for the purpose of investigation of a crime. Such power has to be conferred on a Magistrate by a process of judicial interpretation and in exercise of jurisdiction vested in this Court under Article 142 of the Constitution of India. We order accordingly and consequently dispose of the appeals in terms of the above” (para 27). Also see: *Ritesh Sinha v. State of Uttar Pradesh* (2013) 2 SCC 357 : (2013) 2 SCC (Cri) 748 : 2012 SCC OnLine SC 1015 : AIR 2013 SC 1132; *State national Investigation Agency, MHA, Goiv. Akhil Gogoi* 2020 SCC OnLine Gau 1302 at para 35; GK Goswami and Siddhartha Goswami, “Obligated Voice Sampling: A Judicial Endorsement in *Ritesh Sinha v. State of Uttar Pradesh*” in *Journal of Indian Law Institute* Vol. 61(4) *Journal of Indian Law Institute*, 455-462 (2019); and PN Prakash, Sanjay S. Jain and Sharath Chandran, “The Legality of Voice Exemplars: An Opportunity Missed: *Ritesh Sinha v. State of U.P.*” (2021) 1 SCC J-73.

83 *Dr. Naimish Trivedi v. State of Uttar Pradesh* 2020 SCC OnLine All 1417 at para 18.

of voice samples of the accused.⁸⁴ The court observed that the voice samples of the complainant and two independent witnesses present at the time of collection of samples were not recorded. Again, the High Court of Bombay in a murder case has upheld the acquittal order of the trial court after observing that matching voice samples of the accused are of no use since the voice transcripts have not been produced before the court.⁸⁵

Deception detection techniques

Psycho-analysis based technologies (DDTs)⁸⁶ are evolving as forensic truth machines, but these expert findings *per se* are not admissible as evidence during court proceedings.⁸⁷ However, DDT inputs may be helpful to give pathbreaking clues to divulge the truth behind cold cases or to fill gaps in the chain of events. Normally prosecution requests the court a permit to conduct DDTs in case the accused or suspect refuse to give consent to face these tests, but sometimes the accused also demand DDT tests for proving his innocence to reveal false allegations of the complainant/victim.⁸⁸ The accused also raised finger on procedural lapses in conducting DDTs.⁸⁹ In *Vinod Mittal v. State of Himachal Pradesh*,⁹⁰ the issue of violation of the right against self-incrimination to furnish voice samples and to face a Polygraph test was

84 *Devidas v. State of Maharashtra* 2020 SCC OnLine Bom 1041 at para 25 : (2021) 1 AIR Bom R (Cri) 414. Also see: *Ziyauddin Burhanuddin Bukhari v. Brijmohan Ramdass Mehra* (1976) 2 SCC 17, where the apex court held that “The tape-recorded speeches were “documents” as defined by Section 3 of the Evidence Act, which stood on no different footing than photographs”. Further, in *R.M. Malkani v. State of Maharashtra*, (1973) 1 SCC 471 : AIR 1973 SC 157, the court held that “tape recorded conversation is held admissible if it is relevant, if the voice is identified and the accuracy of the tape recorded conversation is proved by eliminating the possibility of erasing the tape recorded conversation.”; and *Ram Singh v. Col. Ram Singh*, 1985 Supp SCC 611 : AIR 1986 SC 3; *Sudhir Chaudhary v. State (NCT of Delhi)*, (2016) 8 SCC 307.

85 *Dilip Kishore Bawiskar v. State of Maharashtra* 2020 SCC OnLine Bom 201 at para 39: (2021) 1 AIR Bom R (Cri) 819.

86 Deception Detection Techniques (DDTs) include Brain mapping (P-300 Test or Brain Electrical Activation Profile), Lie detector (Polygraph) and narco-analysis.

87 GK Goswami and Siddhartha Goswami, “Obligated Voice Sampling: A Judicial Endorsement in Ritesh Sinha v. State of Uttar Pradesh” 61(4) *Journal of Indian Law Institute* 455-462 (2019). Also see: Bharat Chug and Taahaa Khan, “Rethinking the ‘Fruis of the Poisonous Tree’ Doctrine: Should the “ends Justify the Means” 2020 SCC Online Blog OpEd 76.

88 *Pankaj Arjunbhai Koli v. State of Maharashtra* 2020 SCC OnLine Bom 7547 at para 2. Also see: *In the High Court of Jharkhand v. State of Jharkhand* 2020 SCC OnLine Jhar 1268 para 5; *Sashadhar Pradhan v. Union of India*, 2020 SCC OnLineOri : (2020) 130 CLT 350 at paras 3 & 11; *Rajan v. State of Kerala* 2020 SCC OnLine Ker at para 12; *Court on its own motion v. State of Jharkhand* 2020 SCC OnLineJhar 1268 at para 5.

89 *Vijay v. State of Karnataka* 2020 SCC OnLine Kar 98 at paras 11 & 12 : (2020) 1 KCCR 362 : (2020) 2 Kant LJ 569.

90 *Supra* note 6.

raised on the strength of the celebrated Selvi case.⁹¹ On the issue of consent for collecting bodily samples, High Court of Himachal Pradesh has observed:⁹²

With the consent of the subject also, only that test can be conducted which is otherwise permissible and no impermissible test can be validated even on the basis of the consent of the subject. “Consent” shall never be a tool for validating an act of the Investigating Agency which is not permissible at all. Tests may be of three kinds: ‘permissible with or without consent, ‘permissible with consent only’ and ‘impermissible altogether’. From the ratio of law laid down in Selvi’s case, it is evident that the ‘polygraph test’ falls in the second category, which is permissible but subject to the consent of the subjectperson.

High Court Madras said that for collection of voice samples, custodial interrogation is not required, and the prosecution may file an application before the court to direct the subject to giving his voice sample.⁹³ The evolving role of technology for deception detection during the criminal investigation has been appreciated and deliberated by High Court of Gujarat in *Jaga Arjan Dangar v. State of Gujarat* as under:⁹⁴

The field of criminology has expanded rapidly during the last few years and the demand for supplemental methods of detecting deception and improving the efficiency of interrogation have increased concomitantly. The Investigating Agency has statutory right to investigate the crime and to find out the truth and reach the accused. Narco Analysis Test for criminal interrogation is a valuable technique that would profoundly affect both the innocent and the guilty and thereby hasten the cause of justice. The Investigating Agency cannot be prevented to interrogate the case at the stage of investigation relating to the crime in which he is shown as accused. If the aforesaid two tests are permitted, it would

- 91 *Selvi v. State of Karnataka* (2010) 7 SCC 263 : (2010) 3 SCC (Cri) 1 : 2010 SCC OnLine SC 564. Also see: In *Rabindra Kumar Bhalotia v. State* 2018 KHC 4305, Madras high court held that “... directing the accused to give their voice sample for comparison with that of the questionable voice recorded in the course of intercepted telephonic conversation will not fall within the mischief of testimonial compulsion. It was held to be not ultra vires to Constitution. Giving an extended meaning to Section 53, it was held that wording “examination by medical practitioner” in Section 53, was not restricted to examinations provided therein. Words “such other tests” must be interpreted purposively to include “voice test”.; *Pratap v. Central Bureau of Investigation* 2017 (3) KLT 458; *Daisy M.P. v. State of Kerala* 2020 SCC OnLine Ker 1694 : (2020) 2 KLT 639 : (2020) 3 KLJ 26;
- 92 *Supra* note 6 at para 26. Also see: *Sr. Sephyv. Central Bureau of Investigation* 2019 SCC OnLine Ker 7772 : (2020) 1 KLT 763 at para 33.
- 93 *State Rep. by Assistant Commissioner of Police v. R.S. Bharathi* 2020 SCC OnLine Mad 1209 at para 21.
- 94 2018 SCC OnLine Guj4799 : (2018) CrI. 6403. Also see: *Lilaben Kasabhai Makavanav. State of Gujarat* 2020 SCC Guj 2811; and GK Goswami, and Siddhartha Goswami, “Truth Behind Truth Machines: A Psycho-legal Enigma” (2021) 1 SCC J-14.

assist the Investigating Agency in finding out the truth and find out the real culprit of the commission of an offence. When the Investigating Agency is absolutely in dark and after all efforts and exhausting all the alternatives still there is no further headway in the investigation, the aforesaid two tests would help the Investigating Agency to further investigate the crime and during the aforesaid two tests and/or after completion, the Investigating Agency may get some clue and may be able to further investigate the crime and reach to the real accused/culprit who has committed the offence. Accusations are made against the Investigating Officer using third-degree methods to extract information from the accused and therefore there is a need to have such scientific tests. The scientific tests like the polygraph test; P 300 test are like taking MRI or CT scan and when the accused are not coming forward with the truth, the scientific tests are resorted to by the Investigating Agency to find out the truth and to have a further clue in the matter to further investigate the crime. Such scientific tests are prayed only as a last resort after exploring all the alternatives and when the Investigating Agency is not in a position to reach the accused and find out the truth. If the nature of the offence alleged to have been committed by the accused coupled with the circumstances under which it is committed affords reasonable grounds for believing that an examination of the person will afford evidence as to the commission of the offence then such tests are necessary. It is a right of the Police Officer under the provisions of the Criminal Procedure Code to investigate the crime and collection of the evidence by the Police Officer is permissible under the law. Conducting of Narco Analysis Test and Brain Mapping Test on the accused are in process of collection of such evidence by the Investigating Agency. Section 161 of the Criminal Procedure Code enables the police to examine the accused also during the investigation. It is the duty of every person to furnish information regarding offence and it is the duty of every citizen/person to assist the State in the detection of crime and bringing the criminals to justice. It is a statutory duty of every witness/person, who has knowledge of the commission of the crime to assist the State in giving evidence. The investigation of the crime on the scientific line is to help the Investigating Agency so as to enable the collection of evidence to prove the guilt or innocence of the person accused of committing a crime as the modern community requires modern scientific methods of crime detection, lest the public go unprotected.

The Supreme Court has criticized the directions of the high court to undergo lie detector, brain mapping and narco-analysis before granting bail. Such an unwarranted

judicial approach may convert adjudication of a bail matter to that of a mini-trial, the apex court observed.⁹⁵

Fingerprints

Dermal fingerprints including thumb impressions we have contributed to substantial forensic credence in the administration of justice for a long by stitching the crime with a criminal.⁹⁶ However, the opinion of a fingerprint expert is not a substantive evidence, and such forensic inputs can only be used to corroborate some items of substantive evidence which are otherwise on records.⁹⁷ It is observed that investigating agencies have a tendency not to search for chance fingerprints at crime spots or other possible sources or artefacts.⁹⁸ Such a lackadaisical approach of investigators has been poignantly observed by the constitutional courts.⁹⁹

Expert opinion on handwriting and signature

Government Examiner on Questioned Documents (GEQD) opinion on disputed handwriting and signature helps to determine the genuineness of handwritten or signed documents, in order to assist courts to adjudicate criminal or civil disputes.¹⁰⁰ GEQD testimony further corroborates a document with its author, which is relevant for adjudication.¹⁰¹ This piece of forensic input also helps to ascertain the genuineness of a suicide note.¹⁰² If a document is alleged to be signed by any person, section 76 of the Indian Evidence Act, 1872 necessitates that the signature of the said person must be proved to be in his handwriting, and for proving such handwriting under sections 45 and 47 of the Act, 1872, the opinions of expert and person acquainted with the handwriting of the person concerned have been considered relevant.¹⁰³ The court further held that “Opinion of experts or a person acquainted with the handwriting of a person

95 *Sangitaben Shaileshbhai Datanta v. State of Gujarat* (2019) 14 SCC 522 at para 6 : (2020) 1 SCC (Cri) 395 : 2018 SCC OnLine SC 2300. Also see: *State represented through Inspector of Police v. M. Murugesan* (2020) 15 SCC 251 at para 11 : (2020) 4 SCC (Cri) 885 : 2020 SCC OnLine SC 34.

96 *Subray v. State of Karnataka* 2020 SCC OnLine Kar 2117 at para 5.

97 *Managobinda Mohapatra v. State of Odisha* 2020 SCC OnLine Ori 592 at para 66. Also see: *Musheer Khan v. State of Madhya Pradesh* (2020) 2 SCC 748 at paras 33 & 39 : (2020) 2 SCC (Cri) 1100 : 2010 SCC OnLine SC 229;

98 *State of Goa v. Rizwan Sofik Saiqi* 2020 SCC OnLine Bom 667.

99 *Id.* at paras 28 & 39.

100 *Khazir Mohammad Tunda v. Central Bureau of Investigation* 2020 SCC OnLine J&K 711 at para 12.

101 *S. Ramakrishna v. S. Appaiah* 2020 SCC OnLine Kar 1635 : ILR 2020 Kar 1741 : (2020) 4 Kant LJ 590 : (2020) 211 AIC 483 : (2020) 3 AIR Kant R 250 : (2020) 4 KCCR 3182. Also see: *Gulzar Ali v. State of Himachal Pradesh* (1998) 2 SCC 192; *v. Veeraraju v. State represented by the Assistant Commissioner of Police* 2020 SCC OnLine Mad 4246 at para 21; and *State of Rajasthan v. Ghasi Lal* 2020 SCC OnLine Raj 1933 : (2020) 2 RLW 1077.

102 *Ramrao Kisan Rathod v. State of Maharashtra* 2020 SCC OnLine Bom 29 : (2020) 2 AIR Bom R (Cri) 417.

103 *Shakuntala Rani v. Om Prakash* 2020 SCC OnLine Utt823 : 2021 AIR CC 785 at para 16; *Madholal Sindu v. Asian Assurance Co. Ltd.* 1945 SCC OnLine Bom 44 at para 9; *Samar Bijoy Kar v. Kumudini Gope* 2020 SCC OnLine Tri 509 at para 14; and *H. Venkatachala v. B.N. Thimmajamma*, reported in AIR 1959 SC 443.

may also prove signature and handwriting of a person. For this purpose, provisions are made in sections 45 and 47 of the Evidence Act. Section 45 of the Evidence Act, speaks of the opinion of the expert. According to it, the opinion of the person especially skilled in handwriting, etc is relevant. Similarly, opinion of any person acquainted with handwriting is also a relevant fact¹⁰⁴. Sometimes, the litigants demand to repeat the comparison of the sample by another expert, especially in civil disputes wherein the handwriting expert is a private expert.¹⁰⁵

The High Court Sikkim construed opined that “The mode of proving the contents of a document are detailed in sections 61 to 66 of the Evidence Act.¹⁰⁶ The production of a document purported to have been signed or written by a certain person is no evidence of authorship. In other words, as per the Rules of evidence, a person who makes an assertion must prove it. The handwriting can be proved by circumstantial evidence besides direct evidence...”¹⁰⁷ High Court Madras dealt a legal issue as to whether the court would be barred from sending the disputed handwriting/signature to an expert if the time gap between the admitted signature and the disputed signature was very long.¹⁰⁸ The court referred to several earlier judgments and held that there is as such no bar. The court observed that:¹⁰⁹

It is essentially within the judicious discretion of the Court, depending on the individual facts and circumstances of the case before it, to seek or not to seek an expert opinion as to the comparison of the disputed handwriting/signature with the admitted handwriting/signature under Section 45 of the Indian Evidence Act, 1872. The Court is however not barred from sending the disputed handwriting/signature for comparison to an expert merely because the time gap between the admitted handwriting/signature and the disputed handwriting/signature is long. The Court must however endeavour to impress upon the petitioning party that comparison of disputed handwritings/signatures with admitted handwritings/signatures, separated by a time lag of 2 to 3 years, would be desirable so as to facilitate expert comparison in accordance with satisfactory standards. That being said, there can be

104 *Id.* at para 16. Also see: *Devaraj v. Dayarathini* 2020 SCC OnLine Kar 1662 : ILR 2020 Kar 2447 : 2020 AIR CC 1650 : (2020) 3 AIR Kant R 67 : (2020) 4 KCCR 3198 : (2020) 3 ICC 207 : (2020) 7 Kant LJ 415; and *Murarilal v. State of Madhya Pradesh* (1980) 1 SCC 704 : 1980 SCC (Cri) 330 : AIR 1980 SC 531.

105 *Kewal Chand v. Bhagyavathi Jain* 2020 SCC OnLine Kar 1980.

106 *N. Kamalam (Dead) v. Ayyasamy* (2001) 7 SCC 503; *Shyam Lal v. State of Uttar Pradesh* 2020 SCC OnLine All 1509 : (2021) 114 ACC 230.

107 *Mahesh Agarwal v. Umesh Agarwal* 2020 SCC OnLineSikk 197 at para 96.

108 *P. Indiranv. M. Balakrishnan* 2020 SCC OnLine Mad 6235 at para 12. Also see: *Iqbal Basith v. N. Subbalakshmi* (2021) 2 SCC 718 at para 14 : 2020 SCC OnLine SC 1020; and *Lakhi Baruah v. Padma Kanta Kalita Lakhi Baruah v. Padma Kanta Kalita*, (1996) 8 SCC 357 at para 14 &15.

109 *Bande Siva Shankara Srinivasa Prasad v. Ravi Surya Prakash Babu* 2015 SCC OnLineHyd 467 at para 27 : (2016) 2 CTC 481 (FB) : (2016) 2 ALD 1 (FB) : AIR 2016 Hyd 118. Also see: *Janachaitanya Housing Ltd. v. Divya Financiers* 2008 (3) ALT 409 (D.B.) : AIR 2008 AP 163.

no hard and fast rule about this aspect and it would ultimately be for the expert concerned to voice his conclusion as to whether the disputed handwriting/signature and the admitted handwriting/signature are capable of comparison for a viable expert opinion.

Interestingly, the High Court of Kerala has reversed the acquittal order of the trial court observing that nothing prevented an accused to get the cheque referred to the handwriting expert for examination and his opinion if cheques were forged.¹¹⁰ However, the government forensic laboratories may not accept dockets of samples for a forensic opinion from private parties. In general, civil litigants are unaware of forensic procedures, hence the court may take up this exercise to serve the best interest of justice. High Court of Kerala dealt a legal question of whether comparison made under section 73 of the Evidence Act with respect to disputed handwriting and signature can be the sole basis in proof of due execution of a disputed document is the question came up for adjudication. The court observed,¹¹¹

Section 73 of the Evidence Act is a rule of caution and prudence and not a substitute for an expert opinion under Section 45 of the Evidence Act. The court is not precluded from coming to its conclusion by a comparison under Section 73 of the Act. But the court is not an expert and cannot be an expert and as such, its conclusion may have its infirmities. The court cannot act as a witness to its proceedings and cannot draw an expert opinion as contemplated under Section 45 of the Evidence Act under the guise of power vested under Section 73 of the Act. In short, the conclusion arrived at by the court under Section 73 of the Evidence Act is not an expert opinion as embodied under Section 45 of the Act and the court cannot be an expert within the meaning of that section. The expression ‘may be compared’ in the main portion of Section 73 and the expression ‘for the purpose of enabling the court to compare’ incorporated in the second paragraph would amply show that a comparison under that section is only a rule of caution and prudence and cannot be substituted in the place of proof. The finding rendered by both the courts below on the sole basis of comparison under Section 73 of the Evidence Act regarding the due execution of disputed promissory note cannot be sustained. The non-examination of an independent witness and absence of an expert opinion under Section 45 of the Evidence Act is fatal to the case of the plaintiff regarding proof of execution of disputed promissory note.

110 *S. Vijaya v. Prem Industries* 2020 SCC OnLine Kar 2312 at para 5. Also see: *Indus International School v. M.A. Cariappa* 2020 SCC OnLine Kar 2313 at para 41; *Ragini Gupta v. Piyush Dutt Sharma* reported in 2019 SCC OnLine MP 4372; and *H.M. Satish v. B.N. Ashok* reported in 2007 SCC OnLine Kar 54.

111 *E. Vishnu Namboothiri v. V. Balachandran* 2020 SCC OnLine Ker 1084 at para 3 : (2020) 2 KLT 497 : (2020) 2 KLJ 569. Also see: *Valliyooranv. State rep. by the Inspector of Police* 2020 SCC OnLine Mad 4037 at para 31; and *Magan Bihari Lal v. State of Punjab*(1977) 2 SCC 210 : AIR 1977 SC 1091.

Regarding handwriting expert opinion, the sapient words of K.T. Thomas, J., in speaking for the Bench, in *Gulzar Ali v. State of Himachal Pradesh*¹¹² are worth extracting:

It must be remembered that expert evidence regarding handwriting is not the only mode by which the genuineness of a document can be established. The requirement in Section 67 of the Evidence Act is only that the handwriting must be proved to be that of the person concerned. In order to prove the identity of the handwriting, any mode not forbidden by law can be resorted to. Of course, two modes are indicated by law in Sections 45 and 47 of the Evidence Act. The former permits expert opinion to be regarded as relevant evidence and the latter permits opinion of any person acquainted with such handwriting to be regarded as relevant evidence. Those and some other provisions are subsumed under the title “Opinion of third persons, when relevant”. Opinions of third persons, other than those enumerated in the fasciculus of provisions, would have been irrelevant. Among the permitted opinions those mentioned in Sections 45 and 47 are also included. So it cannot be said that identity of handwriting of a document can be established only by resorting to one of those two sections. There can be other modes through which identity of the handwriting can be established. Citing an example, if a letter is seized from the possession of ‘A’ and the letter contains the name of the sender as well as the name of the sendee and if such sendee happens to be ‘A’ himself, those circumstances even without resorting to the mode indicated in Sections 45 and 47 of the Evidence Act, would be sufficient to draw an inference that the author or even scribe of that letter is the sender and ‘A’ is the sendee of it.

High Court of Sikkim has observed, “The Court cannot rely on the report of the handwriting expert unless he is examined and unless the same is admitted by the parties. It is to be noted that Expert evidence, though relevant in view of Section 45 of the Evidence Act, is not conclusive”.¹¹³ The apex court held that “...in terms of Section 45 of the Evidence Act, the opinion of a handwriting expert is a relevant piece of evidence.”¹¹⁴ However, the apex court in *Ajit Savant Majagavi v. State of Karnataka*¹¹⁵ has cautioned on GEQD opinion by observing, “Therefore, despite no legal bar to judge using his eyes, the judge should hesitate to base his findings with regard to the identity of handwriting solely on the comparison made by himself.”

Ballistics

Many times, investigating agencies are found reluctant for sending exhibits for forensic analysis, and courts have expressed poignance for such callous aptitude. The

112 (1998) 2 SCC 192 ,para 9. Also see: *Veeraraju v. State represented by the assistant Commissioner of Police* 2020 SCC OnLine Mad 4246 at para 21.

113 *Dinku Khati v. Kamal Kumari Subba* 2020 SCC OnLineSikk 26 at para 30.

114 *Muljibhai Patel v. State of Gujarat*, (2020) 3 SCC 794 : (2020) 2 SCC (Cri) 239 : (2020) 2 SCC (Civ) 325 : 2020 SCC OnLine SC 161 at page 801.

115 (1997) 7 SCC 110 : AIR 1997 SC 3255.. Also see: *Devidas v. State Maharashtra* 2020 SCC Bom 1041 : (2021) 1 AIR Bom R (Cri) 414; and *State of Maharashtra v. Sukhdeo Singh* (1992) 3 SCC 700 : AIR 1992 SC 2100.

apex court in *Rajesh alias Sarkari v. State of Haryana*,¹¹⁶ has reiterated the necessity of examination of ballistics expert in case of assault by means of lethal weapons. Court unpinned that such omission may be fatal for the prosecution case.

Forensics in decision making on bail applications

Forensic inputs play a vital role in judicial decision making on an application of bail. In various cases, negative DNA reports or not obtaining DNA test reports, became the basis to grant or refuse bail by various high courts.¹¹⁷ The bail was granted by the high court to the accused in *Tanveer v. State of Uttarakhand*,¹¹⁸ because identity of the deceased could not be established as DNA extracted from recovered body remains could not match with DNA of the father of the deceased. High Court of Karnataka in *Jadeswamy v. State of Karnataka*¹¹⁹ rejected bail petition after observing "...taking into note the serology report and also fingerprint report, it prima facie establishes the involvement of the petitioner. Hence, it is not a fit case to exercise the discretion under Section 439 of Cr PC to enlarge the petitioner on bail".

V DNA LAW-MAKING IN INDIA

More than sixty jurisdictions have special laws on DNA, but such enactment is wanted in India. Indian legislature is making sustained efforts since 2007 to enact DNA legislation but despite several attempts, conflicting privacy issues conflict and DNA Databank remained major challenges to be resolved. Justice AP Shah Committee also suggested safeguards for DNA sample collection and protection of DNA databank.¹²⁰ The apex court directions in *Lokniti Foundation v. Union of India*¹²¹ to collect DNA samples from all unidentified dead bodies/corpus delicti for the purpose of their subsequent identification exerted further pressure on the Indian Government to legislate DNA law. The Lok Sabha of India on 19th July, 2019 has passed the DNA Technology (Use and Application) Regulation Bill, 2019, but it was referred to the Parliamentary Standing Committee, which after long deliberations, via its 340th Report, has submitted observations on 03 February, 2021. These observations were

116 (2021) 1 SCC 118 : 2020 SCC OnLine SC 900. Also see: *Gurucharan Singh v. State of Punjab* (1963) 3 SCR 585 : AIR 1963 SC 340 : (1963) 1 Cri LJ 323.

117 *Atma Ram v. State of Himachal Pradesh* 2020 SCC OnLine HP 2249 at para 6; *Ajay Singh v. State of Himachal Pradesh* 2020 SCC OnLine HP 254 at para 7; *Gorakh Singh v. State of Himachal Pradesh* 2020 SCC OnLine HP 718 at para 16; *Pawan Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 1794 at paras 5 & 8; *Nitesh Chauhan v. State of Himachal Pradesh* 2020 SCC OnLine HP 1591 at paras 6; *Naresh Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 1462 at para 8; *Rakesh Kumar v. State of Himachal Pradesh* 2020 SCC OnLine HP 3667 at para 6; *Noop Ram v. State of Himachal Pradesh* 2020 SCC OnLine HP 430 at para 16; *Laxman Singh v. State of Himachal Pradesh* 2020 SCC OnLine HP 145 at para 16; *Shashi Bhushan v. State of Himachal Pradesh* 2020 SCC OnLine HP 146 at para 16; and *Ram Krishan v. State of Himachal Pradesh* 2020 SCC OnLine HP 2256 at para 16;

118 2020 SCC OnLineUtt 742 at paras 34 & 35. Also see: *Charan Singh v. State of Himachal Pradesh* 2020 SCC OnLine HP 2892 at paras 13 & 14;

119 2020 SCC OnLine Kar 2084 art para 6.

120 "Report of the Group of Experts on Privacy" Chaired by Justice A.P. Shah was submitted to the Planning Commission on Oct. 16, 2012.

121 (2015) 13 SCC 622 : (2016) 1 SCC (Cri) 667 : 2014 SCC OnLine SC 1104.

tabled in the Rajya Sabha on the same day and got parliament clearance.¹²² However, the Bill is yet to get the assent of the President of India. The Bill, 2019 comprises of total 61 sections housed under nine chapters. The proposed law has provisions for the constitution of the DNA Regulatory Board, accreditation of DNA Laboratories for quality control and quality assurance, DNA databank at national and state levels, protection of information in addition to defined offences with corresponding penalties. DNA databank may be used both for civil and criminal disputes. Informed consent of the subject is mandatory in those crimes where assigned punishment is above the benchmark of seven years. The wilful destruction of DNA samples has been made a punishable offence with imprisonment of up to five years. The lawmakers must conclude the process of DNA law making.

VI CONCLUSION

Perfection in justice remains an enduring challenge for judicial efficacy, and only scientific temper in justice administration can accomplish this onerous task. Evidence is pivotal for the judicial process and the quality of evidence is conditioned upon scientific vigour involved therein. The chapters on expert opinion in the Indian Evidence Act and schemes under the procedure codes need a comprehensive overhaul to factor in the latest technological progressions and global legal growth. The doctrine of consent must be defined in the procedural law especially customized for the forensic purpose to address various associated contours. Victims and accused are the most important actors of crime management and they must be empowered with the right to get the scientifically concluded investigation done in cases involving them so that guilt as well as innocence is efficiently and objectively proved. In the practical world, neither victim nor accused is truly consulted during the collection of evidence, which culminates in frustration and lack of faith in the process of justice. Collection of evidence must not be the sole hegemony of an investigator in the name of independence in evidence collection. The scientific investigation must be recognized as an immutable component of the right to dignified life to ensure neutrality and professionalism in policing and to validate transparency in the investigation process. Investigating agencies or any other actors including judges cannot function in silos, indeed each stakeholder contributes organically to serve the ultimate objective of delivering justice. The policymakers worldwide must realize that fair investigation is the precursor to the fair trial, hence scientific pursuit in evidence collection must be duly recognized in the jurisdictional statutes and various covenants on human rights.

Under no circumstances, the conviction of an innocent can be justified, however, global judicial experience stands testimony to the fact of innocents being punished since time immemorial due to imperfect legal procedures. There is no greater tyranny than that which is perpetrated under the shield of the law and in the name of justice.¹²³ The judicial system must abstain from junk science, which is one of the major causative

122 Available at: https://www.prsindia.org/sites/default/files/bill_files/DNA%20Report.pdf (last visited on Dec. 13, 2021)

123 Charles-Louis de Secondat, baron de la Brède et de Montesquieu, *The Spirit of the Laws*

factors responsible for erroneous justice leading to illicit convictions.¹²⁴Evidencing innocence as a matter of right fundamentally needs to be recognized at the stage of investigation and should not be awaited till trial proceedings. The trial begins at a very late stage, and by then evidence may be difficult to preserve and to produce afresh in the courtroom. India must prioritise to develop a legal framework for fighting against wrongful convictions. There is a dire need for overhauling forensic law by introducing global best practices in the domain areas. The Government of India has also expressed its focus to facilitate the use of forensic science.¹²⁵ There is a stark shortage of forensic laboratories and trained manpower in India, which needs attention. It is heartening that the Government of India has established National Forensic Science University at Gandhinagar for promoting quality education and research in various forensic disciplines.¹²⁶The recruitment rules for appointing forensic experts must be amended to infuse new blood into the laboratories. Long experience as an essential qualification for recruitment may be avoided by introducing the concept of an assistant expert in forensic reporting for the prescribed number of case analysis. In every laboratory, the internship must be planned to inculcate hands-on experience for the students of expert domains.

“Justice delayed is justice denied” – an oft-quoted phrase widely emphasised so that justice may be expedited, but this dictum is mostly limited to the trial proceedings. Execution of the death penalty and various allied issues get affected due to inordinate delay in disposal of appeals, which needs the attention of the government.¹²⁷Umpteen number of appeals in heinous crimes are languishing in the appellate courts in India but pendency data is not easily accessible in the public domain. The National Crime Record Bureau of India may consider annually compiling various facets of data on criminal appeals. In modern times, the justice system ought to look for not only restructuring to achieve the right legal framework but should also focus on ensuring impartial and scientific investigation to achieve the larger goal of a fair trial.

124 Colby Duncan, “Justifying Justice: Six Factors of Wrongful Convictions and Their Solutions” 7(6) *Themis: Research Journal of Justice Studies and Forensic Science* (2019).

125 “Amit Shah: Era of third degree over, use forensics to nail criminals”, Express New Service, New Delhi, Aug. 29, 2019. Available at: <https://www.republicworld.com/india-news/general-news/amit-shah-proposes-mandatory-forensic-team-visit-for-crimes-punishable-by-6-years-and-more.html> (last visited December 13, 2021). Also see, available at: <https://www.dnaindia.com/india/report-union-home-minister-amit-shah-stresses-on-scientific-investigation-2785784> (last visited Dec. 13, 2021).

126 The National Forensic Sciences University Act, 2020 (No. 32 of 2020), An Act to establish and declare an institution to be known as the National Forensic Sciences University as an institution of national importance to facilitate and promote studies and research and to achieve excellence in the field of forensic science in conjunction with applied behavioural science studies, law, criminology and other allied areas and technology and other related fields, and to provide for matters connected therewith or incidental thereto.

127 Soumitra Pathare, Living on death row with illness, *The Hindu*, Nov 01, 2021, Available at: <https://www.thehindu.com/opinion/op-ed/living-on-death-row-with-illness/article37274272.ece> (last visited Dec. 13, 2021)