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Invisible guardian: Constitutional boundaries in forensic investigation

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Abstract
There exists a close relationship between forensic science and the legal system because forensic science supplies the scientific evidence and techniques that the legal system employs to administer justice. Nowadays, forensic evidence is among the most trusted forms of evidence, particularly in the realm of criminal justice. The usage of scientific techniques to gather information on collected evidences to prove or disapprove the ascertained facts highly contributes to a speedy and an efficient justice delivery system. In India, forensic science works hand in hand with the constitutional framework to uphold justice, fundamental rights and maintain the rule of law. The constitution through its key provisions enshrined in Article 20(3) and Article 21 ensures that individuals rights are safeguarded while emphasising on fair investigation and trial. Embracing the profound principle of "Let Hundred Guilty Be Acquitted but One Innocent Should Not Be Convicted" this presumption of Indian criminal justice system guarantees the accused's innocence until and unless he is proven guilty beyond a reasonable doubt, and it became crucial to use forensic science's assistance in conducting investigations related to criminal matters in order to give due justice to this idea. This study aims to balance that application of forensic science must align with the constitutional safeguards to protect individuals right.

Keywords: Constitutional, investigation, legal system

Introduction

At the heart of any criminal offence lie two fundamental elements: actus reus and means rea. Actus reus describes the deed or behaviour of an individual that physically represents the crime. Mens rea on the other hand, explores the perpetrator's mental state at the moment of the conduct. Mens rea, which reflects the guilty mental state that goes along with the wrongdoing, is frequently seen as the "guilty mind" element of a crime. This mental state can take many different forms, ranging from a deliberate plan to commit a crime to an isolate's moment of poor judgement. Recognising these components serves as essential for the criminal justice system to make the distinction between unintentional offences and intentional acts. The cornerstone of criminal law is this complex interplay between these two, which directs the assessment of guilt and innocence. Evidence to support the mental status and thinking behaviour of the perpetrator is not easy to detect just by the reasons provided under the legal codes of the forum, which is not a new issue facing by the courts while deciding the criminal liability of an individual. But as a result of scientific and technological advancements, both the concept of crime and the means by which the criminals perpetrate it have seen significant modifications. In India it is true that criminals are becoming quite sophisticated, but the laws are not. Hence, while dealing with the challenges that were encountered, scientific expert evidence is growing at a rapid pace with technological advancement. Experts use of scientific approaches to gather evidence has grown in importance in criminal investigations and trials in recent years. Scientific evidences, when presented before a court of law that has been obtained using technological means raises the important question of whether or not it may be admitted.
Because of this, burden of proof rests squarely on the shoulders of the trial court to determine the veracity and reliability of the expert testimony and scientific findings. Based on the legally established admissibility threshold, the court is responsible for reviewing the scientific evidence and determining whether the expert's conclusion was appropriately reached [1].
India has taken remarkable steps toward integrating forensic evidence into its criminal justice system, marking a progressive shift in the approach to crime investigation and adjudication.
Recent legislative developments, such the Bharatiya Nagarik Suraksha Sanhita, 2023 and the Bharatiya Sakshya Adhiniyam, 2023, stress how crucial forensic science is in revealing the truth, especially in serious crimes that involve severe punishments. These laws mandate the involvement of forensic experts in crime scene investigations, reinforcing the idea that scientific analysis is indispensable for a robust and reliable justice delivery system. However, as India embraces these advancements, it must also ensure that their implementation aligns with the constitutional values enshrined in the Indian Constitution. Articles 20 clause (3) and Article 21, which protect Right against Self-incrimination and guarantee the Right to Life and Personal liberty, respectively, serve as vital safeguards in this context. These provisions underline the importance of maintaining a balance between the pursuit of justice through forensic science and the protection of individual rights. By regulating investigative techniques
to these constitutional bounds, India affirms its commitment to justice and ensures that scientific advances do not violate individuals' rights. This complex link between law and science emphasises the need for ethical, transparent, and constitutionally sound forensic techniques to uphold criminal justice fairness and equality.

Forensic investigation: The science behind jusitce

Forensic investigations have revolutionized the pursuit of justice, combining science and technology to uncover the

truth in complex legal cases. However, in a democratic society like India, the application of forensic techniques must operate within the constitutional boundaries that safeguard individual rights and uphold the principles of justice. The cases like *Nithari serial killings* [2] where there was no witness to the crime scene and the prosecutors doesn't have a solid ground to work with, forensic science played an important role. In the places where human remains are found in decayed conditions and cannot be recognized, in such cases forensic scientists use DNA from the body to examine the skeletal structure which turned the probability of someone being a criminal. This also narrows down the possibility of delayed judgments and wrongful convictions. The evidence collected at the scene of a crime is of utmost significance in court trials, as physical evidence carries greater weight than any other form of evidence. Forensic science is a powerful tool in protecting the innocent by exonerating the wrongly convicted, identifying the true perpetrators of a crime, uncovering false evidence, challenging biased or subjective testimony, improving investigative techniques and standards, and promoting reliable investigative practices. It helps to exonerate the wrongly convicted, identify the true perpetrators, expose false evidence, counter biases, and promote reliable investigative practices.

Fingerprint analysis

Fingerprints serve as essential evidence in criminal investigations because of their distinctive ridge patterns, which remain unchanged over an individual's lifetime. The patterns established here serve as a dependable method for recognizing individuals, exhibiting a minimal chance for incorrect identifications. The acceptance of fingerprint evidence in legal proceedings is mainly dependent upon expert evaluation, given that fingerprints are regarded as an accurate discipline. The Karnataka High Court, as noted in *Re Govinda Reddy* [3], underscored that "the science of matching fingerprints has evolved to a level of efficiency [4]". Fingerprint evidence, whether gathered from a crime scene or acquired from a victim or suspect, is essential in establishing guilt or innocence. The consistency of this element serves as a crucial determinant in both securing convictions and facilitating acquittals. Nonetheless, the reliability of fingerprint evidence is heavily dependent on the conduct of the investigating officer, whose duties include capturing the incident, carefully gathering fingerprints, and guaranteeing their appropriate preservation and examination. This careful procedure highlights the essential function of law enforcement in guaranteeing the admissibility and efficacy of fingerprint evidence in the quest for justice.

Forensic DNA

DNA is frequently referred to as the "blueprint of life" due to its role in containing all the necessary information for the organism's function and reproduction [5]. This process of testing and interpreting genetic samples in order to aid in the investigation of the identification of a perpetrator or victim, especially in the context of criminal investigations, is referred to as forensic DNA analysis. The process of extracting, purifying, and analysing DNA from biological samples taken from suspects, victims, and crime scenes is referred to as forensic DNA analysis. This process requires the use of scientific technologies. DNA evidence has always been significant in criminal investigations. As in the *Priyadarshini Mattoo case*[8], semen samples from victims may be linked with accused suspects to ascertain whether they committed the crime. In the *Rajiv Gandhi assassination* [6], 1994, the bodies were severely damaged in the explosion, and DNA was used to identify the prime minister and the perpetrator. *Tandoor Murder Case* [7] is widely considered to be among the most heinous murder cases in the annals of Indian history. An effort was made by the husband to burn his wife's corpse inside a tandoor after he had slain his wife with a pistol in this particular instance. Both the handgun that was used for shooting and the garments that were stained with blood were sent to a forensic laboratory. Additionally, a blood sample from the dead person's family was submitted in order to identify the corpse of the deceased person for the purpose of a DNA test. According to an observation mentioned in the DNA report, "The tests prove beyond any reasonable doubt that the burned body is that of Naina Sahni, who is the biological daughter of Mr. Harbhajan Singh and Jaswant Kaur". Both the fingerprints on the pistol and the fingerprints on the accused person were identical. Without a shadow of a doubt, these pieces of evidence demonstrated that the accused was guilty, which ultimately led to his conviction. In light of the fact that the
accused had attempted to destroy the evidence of the crime but was ultimately apprehended by the police, forensic science played an important part in this inquiry as well. Without the assistance of forensic science, it would have been impossible to show beyond a reasonable doubt that the accused was guilty of the crime.

Forensic Ballistics

Ballistics refers to the investigation and identification process that involves the methodical examination of the bullets and guns used in criminal acts. A firearm is a device by which a projectile or projectiles can be hurled with great force. It includes familiar hand weapons like revolver, pistol, rifle and shotgun but also the machine gun and an extensive variety of military artillery. According to opinion ballistic evidence now share the same footing as the fingerprint proof. In *Sukhwant Singh v. State of Punjab* [8], the appellant was charged with section 302 crime for murdering the deceased. Despite recovering empty cartridges and seizing the accused's weapon, the prosecution neglected to submit them to a ballistic expert. The brother of the deceased testified alone in the prosecution. The court emphasised the significance of ballistic expert opinions in firearm injury cases, particularly where both the weapon and crime cartridge were found during investigation, linking the accused to the incident. Not presenting an expert opinion before the trial court significantly impacts the prosecution's credibility. According to the court, it is not safe to rely only on the evidence of PW3, the brother of the deceased, and sustain the appellant's conviction. The conviction and sentence of the trial court were not upheld, resulting in the appeal being permitted and the appellant being acquitted.

Narcoanalysis

Narcoanalysis is becoming an increasingly frequent phrase in India, and it may perhaps be the most prevalent term. It is a term that describes the method of psychotherapy that involves creating a condition similar to sleep in a patient via the use of some kind of medication. Since the beginning of

time, people have had a propensity to tell falsehoods with their words. The burden of truth is always heavy, and only a select few are able to carry it. Through the use of their imagination, a person is able to tell a lie. During this test, the person's inhibitions are reduced by interfering with his neurological system on a molecular level. This is done from the perspective of the subject. In a condition similar to sleep, attempts are made to gather the "Probative truth [9]" regarding the crime. This is because, while in a sleep-like state, it becomes harder, but not impossible, for him to fabricate information. The use of techniques in India has largely been restricted to the forensic set up. The Kerala High Court allowed the narco-analysis test in the case of *Rojo George v. Deputy Superintendent of Police* [10] because they thought that thieves today use complex and modern methods to commit crimes, making the old-fashioned ways of questioning them useless. So, these methods need to be replaced with more up-to-date ones, like third-degree methods, that can be thought of as working [11].

Laws governing forensic science investigation

The recent reforms to India's criminal justice system represent a significant advancement towards more modern approaches to investigation and prosecution. The recent overhaul of India's criminal justice system through the implementation of the Bharatiya Nagarik Suraksha Sanhita (BNSS), Bharatiya Nyaya Sanhita (BNS), and Bharatiya Sakshya Adhiniyam (BSA) signifies a notable transformation in the utilisation of forensic science within criminal investigations.

Mandatory collection of Forensic Evidence

Section 176(3) of BNSS states that, if the crime is punishable by a sentenced to 7 years or more in imprisonment, the investigating officer is required to contact forensic specialists to the scene of the crime. Forensic experts are required to collect all relevant forensic evidence in order to acquire evidence. It is mandatory for forensic professionals to document each stage of the evidence collection process using their cell phones or other electronic devices as video recording devices. This ensures that the evidence collection process is transparent and accountable. This section improves the collaboration between governments by requiring that when a single state lacks sufficient forensic resources to conduct an investigation, it seeks assistance from neighbouring governments. The objective of this provision is to enhance the quality of investigations by leveraging the expertise of forensic scientists. When crime scenes are rigorously examined and evidence is preserved, the likelihood of conviction in grievous crimes is significantly increased. The relevance of forensic science is emphasized in Section 176(3) of the BNSS, which fundamentally modernizes criminal investigation in India.

Integration of technological advances

The recent legislation highlights the importance of incorporating technology at every phase of criminal investigations. This encompasses required audio-video documentation during search and seizure activities as specified in Section 105 of BNSS, which seeks to improve accountability as well as transparency. The necessity of videography in evidence collection serves as a protective measure against potential manipulation and discrepancies.

Expanded Authority for Collection

Section 349 of BNSS establishes a crucial provision aimed at promoting justice by granting magistrates the authority to mandate the collection of various forensic samples, such as *fingerprints, specimen signatures, finger impressions, and voice recordings*, from both the accused and witnesses. This provision enables a more thorough collection of evidence, which can be crucial in connecting suspects to crimes or verifying alibis.

Authentication of Electronic Evidence

BSA has resulted in substantial modifications to the legal landscape with respect to digital evidence. This statute explicitly recognizes electronic recordings as "documents", thereby increasing the evidential value of these records. Section 63 of BSA specifies a specific approach to electronic record acceptance. The objective of these modifications is to ensure that the legal framework is in accordance with the digital era and to facilitate the use of electronic evidence in judicial proceedings. New explanations regarding digital or electronic evidence were incorporated into Section 57 of the BSA, which is classified as primary evidence:

"Explanation 4. —Where an electronic or digital record is created or stored, and such storage occurs simultaneously or sequentially in multiple files, each such file is primary evidence. Explanation 5. —Where an electronic or digital record is produced from proper custody, such electronic and digital record is primary evidence unless it is disputed. Explanation 6. —Where a video recording is simultaneously stored in electronic form and transmitted or broadcast or transferred to another, each of the stored recordings is primary evidence."

Constitutional concerns in forensic investigation

The relationship between constitutional law and forensic science represents a vital aspect of the justice system. The application of scientific techniques in forensic science plays a crucial role in investigating crimes, as it is essential for determining facts and establishing guilt or innocence. Nonetheless, its implementation must conform to constitutional principles to safeguard essential rights, guaranteeing that empirical approaches do not violate personal liberties. The Constitution in India serves as the essential framework for the legal system, shaping the processes surrounding the use and collection of forensic evidence, all while safeguarding individual rights throughout criminal investigations and trials. The Indian Constitution serves as the supreme legal framework, outlining the rights and duties that protect personal liberties. The constitutional safeguards play a crucial role in shaping the application of forensic science within the realms of criminal investigations and legal proceedings. As a result, the application of forensic science in law enforcement must comply with these safeguards, guaranteeing that the methods utilised are both scientifically sound and legally permissible.

Article 20(3): Self- incrimination

Article 20 (3) of the Indian Constitution guarantees the right to self-incrimination, stating that an accused person shall not be forced to testify against oneself. As a result, it functions

similarly to privilege for the accused. This privilege is founded on the legal maxim *"Nemo tenetur prodre accussare seipsum,"* which states that no one is obligated to incriminate himself. Article 20(3) of the Indian Constitution prohibits self-incrimination, ensuring that accused cannot be compelled to testify against themselves. This safeguard guarantees fair trials and prohibits intimidation in criminal investigations. An accused person may make remarks, admissions, or acts that show their guilt. The prosecution has the burden of proof, since the accused is deemed innocent unless proved guilty. Forensic evidence may conflict with Art. 20(3), but in *The State of Bombay v. Kathi Kalu Oghad & Others* [12], the court ruled that providing specimen signature, blood, hair, thumb impression, or semen does not qualify as a witness. Therefore, the perpetrator cannot object to the DNA test for trial and investigative purposes. The Punjab and Haryana High Court ruled that exposing an accused to a DNA test does not contravene Article 20(3). It is unlikely that any breach of the right against testimonial compulsion will arise if a court orders an individual to undergo DNA testing [13], as courts may do so legally. When courts can compel an accused to provide DNA samples, hand, palm, and foot impressions, they should also be subjected to narco-analysis, polygraph, and brain mapping tests to aid authorities in their investigations. Additionally, the discussion emerged concerning narco-analysis. In narcoanalysis, the investigating officer seeks to obtain a statement from an individual on the edge of consciousness, aiming for that statement to be utilised as evidence. While this procedure has specific enquiries related to legal and ethical matters. This approach in forensic science was perceived as a breach of Article 20 (3). In the case of *Ramchandra Reddy and Ors. v. State of Maharashtra*[17], the High Court of Bombay has affirmed the validity of employing brain fingerprinting, narco-analysis, truth serum, and polygraph examination. The court has affirmed the special court order permitting the SIT to conduct scientific examination on both the offender and the principal perpetrator in the stamp paper scam. The case of *Nandini Satpathy v. P.L. Dani* [14] reaffirmed the idea that an individual cannot be forced to respond to questions or provide information that may incriminate them. It developed a wide reading of Article 20(3), safeguarding the accused against self-incrimination, which is critical when using forensic methods like as polygraph examinations or blood analyses [15]. In forensic science, these principles hold significant importance during the process of gathering evidence from the accused. Techniques such as narco-analysis, polygraph tests, and brain mapping, which seek to obtain information directly from the accused, have faced critical examination under Article 20(3) due to the potential for coercing the accused into giving testimony that may lead to selfincrimination. In the landmark decision of *Selvi v. State of Karnataka* [16], the Apex Court of India determined that such techniques infringe upon Article 20(3) unless there is voluntary consent, thereby strengthening the constitutional safeguard against compelled selfincrimination.

The underlying idea in Article 20 (3) suggests that the accused is being compelled to provide a statement. This should not be seen as coercing an accused individual into participating in a test. From researcher perspective, considering the interest of justice, even if an accused is required to undergo a test, it would not be classified as self-incrimination since the results or outcomes of such a test cannot be anticipated in advance. Consequently, these tests ought to be viewed not as violations of Article 20(3) but rather as valuable methods to facilitate successful investigation.

Article 21: Right to Privacy

The Right to Privacy is a fundamental right under Article 21 of the Indian Constitution, recognized in the landmark case of *K.S. Puttaswamy v. Union of India*[21]. This right gives people control over their personal information and prevents arbitrary invasions by the state or others. Forensic science relies heavily on this right when dealing with personal data or biological materials, such as DNA analysis, fingerprinting, or biometric identification. Forensic science is crucial in the criminal justice system, yet it often requires acquiring sensitive personal information such as genetic material, fingerprints, or face identification. If not properly controlled, these approaches might jeopardise an individual's privacy. Collecting DNA samples for forensic reasons raises issues regarding data abuse or unauthorized keeping. Improper forensic data management, such as storing DNA profiles in uncontrolled databases, may lead to privacy breaches and exploitation of genetic information, even for non-legal reasons. In According to the Supreme Court's ruling in *Dipanwita Roy v. Ronobroto Roy* [17], a court must weigh the interests of all parties and carefully consider whether a DNA test is absolutely necessary for a fair decision in a case when there seems to be a conflict between a person's right to privacy and the court's duty to find the truth. So, if a request is made for a DNA test to determine paternity, the court should not regularly or frequently order the test. In the case of *Malak Singh v. State of Punjab*[23], the petitioner contended that the inclusion of his name in the police surveillance register constituted a breach of Article 21. It is pertinent to note that the right to privacy is not an unconditional right. The irony lies in the frequent violation of an accused individual's right to privacy, which is often ultimately resolved in favour of the accused. In *Selvi v. State of Karnataka* [18], the Supreme Court laid out that Nacro-analysis, brainmapping, and lie detector examinations cannot be administered on an accused without their consent, as doing so would infringe upon Article 21. It was formally asserted that fundamental rights are universally accessible to all individuals, regardless of their status as accused or victim. In contemplating the fundamental rights of the accused, it is imperative to also acknowledge the rights afforded to the victim, ensuring that neither is overlooked in the discourse of justice. In *Sharda v. Dharmpal* [19] Supreme Court itself held that in case there is a conflict between fundamental rights of two parties, that right which advances public morality would prevail. In the case of *D.K. Basu v. State of West Bengal*[26] in 1997, the Apex Court laid out the necessity for the advancement of scientific tools and methods for the investigation and examining of perpetrator, with a focus on highlighting that deaths in custody and mistreatment are major violations of the rule of law. Nacro-analysis, brain-mapping, and polygraph tests represent a systematic and empirical approach to investigation. In India, where the right to life is enshrined as basic human right, there exists a concerning reality of custodial crimes. Custodial assault, deaths, and torture are all serious violations of the right to life, which encompasses the right to

live with human dignity. Numerous instances of custodial torture exist, where the accused suffer extensive injuries aimed at extracting information related to theft, often resulting in their death. Media outlets frequently report on these regrettable occurrences. Custodial crime constitutes a breach of essential rights. Subjecting an accused to a scientific test is a far more favourable option than allowing them to endure third-degree torture. These tests are considered to infringe upon Articles 20(3) and 21; instead, they ought to be regarded as reinforcing fundamental rights. The right to a speedy and fair trial is a fundamental right that is accessible to both the accused and the victim. Indeed, if a trial is not conducted swiftly, it cannot be considered reasonable, just, or fair, and it would violate article 21 [20]. These scientific techniques contribute to ensuring a prompt and equitable trial. The notion of a fair trial and thorough investigation should not be viewed solely through the lens of the rights or liberties of the accused; it is essential to recognize that the victim and society also endure consequences when the investigative process falters. The functioning of the justice system in criminal cases entails a dual process, wherein delivering justice to the victim is as important as safeguarding the rights of the accused under the Constitution. However, our judicial system seems to appears to be evolving in a manner that favours criminals, making life increasingly challenging for law-abiding citizens. The prohibition of inhuman treatment, including third degree torture and custodial violence, is a right afforded solely to the accused. By employing these methods, it is possible to entirely eliminate custodial crimes. Therefore, these methods or techniques should not be discarded but integrated into the core of investigations.

Conclusion

This led us to consider the delicate balance between the growth of forensic science in criminal investigations and individuals' constitutional rights, namely under Articles 20(3) and 21 of the Indian Constitution. Article 20(3) prohibits persons from being forced to testify against themselves, a clause that has provoked heated discussion about the admission of forensic evidence such as DNA and fingerprint analysis. The landmark decision of Selvi v. State of Karnataka highlighted this issue, with the Supreme Court ruling that involuntary psychological testing, such as narco-analysis, may breach the right to self-incrimination if performed without agreement.

Reflecting a gradual change towards contemporary investigative techniques, the recently enacted criminal statutes, particularly the Bharatiya Nagarik Suraksha Sanhita advocates methodical collecting of forensic evidence. These regulations underline the requirement of permission and protection of individual rights as well as enable different forensic samples to be collected. This raises questions regarding how such provisions fit constitutional safeguards,

however. Although the BNSS seeks to improve investigation efficiency by means of required forensic evidence collecting, it is vital that such actions do not violate the basic rights guaranteed by the Constitution. Overall, it is imperative to exercise care as forensic science becomes an essential component of criminal investigations in India. The legal frameworks must guarantee that the development of forensic techniques does not violate the rights of individuals or result in wrongful convictions. A nation like India should promote a more equitable and just legal system that honour's the rights of its citizens and the pursuit of truth by maintaining constitutional protections and embracing scientific advancement.

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