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THE INTERFACE BETWEEN THE CRIMINAL JUSTICE AND FORENSIC SCIENCE

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Abstract

The 'Criminal Justice' subsumes multi agency functioning, aimed at securing the legally ordained ends. The colonial criminal justice that was designed to fortify the imperial power through coercive police action was rarely subjected to restraints by the courts in the interest of liberties. In the post Independence era the criminal justice became pro citizen, because, every now and then, the police power was subjected to the constitutional and human rights standards. In the later phase the Constitution and the science and technology push was responsible for the broadening of the horizons of criminal justice and infusing the criminal processes with the forensic science outlook. The broadening of the horizons also became the cause for the criminal justice extending its concern to the pre crime stage behaviour, on the one hand and according greater credibility to the forensic science techniques and methods, on the other. In part V there is a full length discussion of Lucia Zedner's rationalization of the movement of the criminal justice in England in the direction of pre crime security society, which has some parallels in India as well. The pre-crime security shift has immense possibilities for the legality, constitutionality and the very idea of criminal justice itself, but because here a shift is viewed from the point of view of our limited concern of its impact on the interface, focus is on reshaping of the penal laws in the post 2019 era. Here the reshaping of the penal laws has been examined in terms of the normative aspects and their operational fallouts. The fallouts are summed up in the three tasks and two challenges. The second task that calls for a reorganization of criminal justice agencies by creation of a Forensic Services Agency/Directorate of Forensic Services is to impart strength to the normative changes brought about in the Bharatiya Nagrik Suraksha Sanhita 2023 and the Bharatiya Saksha Adhiniyam 2023. The third task that relates to the normative allocation of competences to the newly created Forensic Services Agency is equally vital. The two challenges, namely too much security and overbearing artificial intelligence are like the compass that would ultimately guide the interface to the desired direction.

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I Introduction

THE THINKING about the interface between the criminal justice (CJ) and forensic science (FS) continues to be encumbered by several considerations like: *First*, the knowledge domain or the disciplinary boundaries within which the issue is raised, *second*, the stage/stages at which the interface is perceived and *third*, the understanding and definition of the key terms CJ and FS deployed in the interface. It is coincidental that the talk of interface has surfaced at a time when the trend of inter-disciplinary congregations, nicknamed as Conclaves is afoot, and the focus is on the 'Criminology Conclaves' held in the last six months. (The first Conclave was organized at the NFSU, Delhi Campus, in August 31 to September 1, 2023, and the second by the NLUD, on "Shaping the Discourse and Scholarship in Criminology", in December 23, 2023 and the third, in March, 20-22, 2024). While the first two Conclaves were dominated by the expert's drawn from the criminology and law streams, the third reversed the order by charting the "Trends in Forensics, Law and Criminology", with a dominant involvement and participation of the forensic science experts.[1] The third Conclave was designedly aimed at the integration of the three knowledge streams with a view to empowering the criminal justice system for the Viksit Bharat odyssey.[2] The second consideration, pertaining to the stage/stages of the perception of interface may assume significance at the stage of legislating the substantive or procedural law norm or at the stage when they are enforced. At the norm making stage the interface will be perceived at the generalized level, while at the enforcement stage the perception will have to take into account the realities at the ground level. Similarly, the interface at the investigation stage, full of blind alleys about the crime incident, has to be different from the crime at the trial stage when the court has most of the information about the crime before it.

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1 The organizers of the 'Third Conclave' as a part of the "International Conference on Trends in Forensics, Law and Criminology : Empowering Criminal Justice in the 21st Century and Beyond" at the National University of Juridical Sciences, Kolkata on March 20 to 22, 2024 have reported that the conference evoked the participation from the inland and foreign scholars numbering to 235. Of the total number of participants 153 were drawn from the forensic science (including medical forensics) stream, 45 from the law stream and 33 from the criminology stream. The breakup of the resource persons- 35 were from forensic science, 9 from law and 5 from criminology disciplines.

2 The author's responsibility to present a valedictory address to the Third Conclave required him to explore the inter-disciplinary linkages, particularly between criminology and forensic science, which proved more difficult for him than he expected, because most of the established text books, on criminology or forensic sciences, either relied upon the legacy of the foreign authorities or ignored the Indian historical context as inconsequential. However, his search for the inter-disciplinary linkage was largely rewarded on getting access to K. Chokalingam's masterly articles : "The Emergence and the History of Criminology : A Global and Indian Perspective" published in the special edition 2023 of the *Indian Journal of Criminology* at 23-40, which shall be discussed in the later parts in detail.

That third consideration, which is crucial for the interface, relates to the conceptual understanding and the definitional boundaries of the key elements, namely the 'criminal justice, and the 'forensic science'. Assuming, that because of a longer evolution and greater legislative and judicial action on the front, the term 'criminal justice' has become more or less settled and requires much less deliberation in comparison with 'forensic science'. Therefore, it is logical to shift the focus to the ways and purposes for the understanding and the precision in which the term 'forensic science' is understood and defined. Hitherto, the term 'forensic science' and the knowledge stream associated with it have been understood narrowly and unilaterally by linking it to a criminal case for the proof of a "fact in issue" as per the Evidence Act, which in the commonly used parlance, can be described as the "forensic evidence science". However, in the contemporary context there is an increasing deployment of science and technology for the surveillance, external and internal security, bio-metric data, artificial intelligence and multiple modes of digitalization *etc.*, the term forensic science is used broadly and extendedly as an umbrella term "forensic security science". Both, the narrow and the broad conceptualization of "forensic science" may have some similarities, but their purpose are markedly different because the first aims to provide the best and the most scientific evidence to prove a 'crime', while the second relates to providing exploratory evidence for the 'pre-crime' stages. Thus, the aforesaid three considerations tend to coalesce in the phenomenon of interface that may be decoded best by attempting a phase wise evolution of this ever changing phenomenon.

II British colonial criminal justice system

Ever since the English people set their foot into India, first, as traders and later, as sovereign power, the British criminal justice made inroads into the Indian society, by replacing the prevalent Hindu and Islamic criminal law systems. The East India Company started with trading activities in the three Presidency towns of Madras, Bombay and Calcutta, but soon secured administrative powers to settle disputes of civil and criminal nature, between the company and the people in the Presidencies and its suburbs. The first instalment of the British criminal justice came in the form of Company regulations that were issued by the Governor Generals, from time to time. With the assumption of sovereignty in 1858 the British criminal justice received official recognition manifesting in the enactment of the comprehensive substantive and procedural law Codes and Acts such as the Indian Penal Code, 1860 the Criminal Procedure Code, 1861 (as amended in 1882 and 1898) the Indian Police Act, 1861 and the Indian Evidence Act, 1872. The aforesaid criminal justice laws aimed at imposing hitherto unknown crime concepts that were enforced by coercive criminal justice machinery, which operated more for the legitimization of the ruling class power. According to Barry Wright, the colonial rule in India posed twin challenges of reconciliation between liberties and state power, thus: "These reflected unresolved tensions between the rule of law and liberties on the one hand the requirements of

sovereignty and state power on the other".[3] Another scholar N. Hussain has appreciated the nature of the colonial criminal justice, thus: "The ideological justification for the British presence in India drew heavily on a much-vaunted tradition of ancient British liberty and lawfulness... Government by rules became the basis for the conceptualization of the 'moral legitimacy' of British colonial rule".[4]

As against Barry Wright and N. Hussain's who viewed the criminal justice from above, Ranabir Samaddar takes a critical view of the colonial foundations of the rule of law from below : *First*, by relying upon the legalistic framework for identifying a criminal and *second*, by developing criminal responsibility and punishment around expressly laid down rules of evidence. For the identification of the "Criminal" the Penal Code and the other criminal legislations provided the basic framework that had to be made known and acceptable amidst the native society. According to Samaddar: "Criminal legislation had to operate simultaneously in two different registers: on the one hand, it had to argue that criminality was occurring in distinct cultural milieus of society and in communities (thus, the idea of criminal tribes, for instance); on the other, the trial and punishment process was to be public, non-communitarian legal and scientific. Thus, the questions such as who comprised a criminal, how criminal elements enmeshed with the public, what methods were illegal, and so on, were issues that defined the power of sovereign authority, marking at the same time, everyday government ability of rule that needed to cope with crimes unsettling the society".[5] In the same context Samaddar opines "Detecting the crime and criminal was important because the technology of detection was a miniature way of knowing the 'true' bodies of individuals or groups, as if that could lead to the unravelling of the mystery of the 'true' mind of the criminal individual or the group – What kinds of bodies harboured what kind of minds and what kinds of minds called for what kind of bodily practices. If such practices were made visible, described and represented, the process of judgment was necessarily rendered public".[6] The rationale of the total process is explained this way: "Reason would from now on dictate new forms and process of punishment, still closely centering on the body but making the inspection, diagnosis, judgment and punishment a matter of rational process. Together, the Indian Penal Code, the Indian Criminal Procedure Code, and the Indian Evidence Act were inextricably linked to

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3 Barry Wright, "Macaulay's Indian Penal Code : Historical context and Organizing Principles", in Weng-Cheong Chan *et al.*, (eds.) *Codification, Macaulary and the Indian Penal Code – The Legacies and Modern Challenges of Criminal Law Reform* 26 (Ashgate Publishing Ltd., 2011).

4 N. Hussain, *The Jurisprudence of Emergency : Colonialism and the Rule of Law* (Univ. of Michigan Press, 2003). Quoted by Barry Wright, *id.* at 27.

5 Ranabir Samaddar, "Crimes, Passion and Detachment : Colonial Foundations of Rule of Law" in Kalpana Kannabiran *et al.*, (eds.) *Challenging The Rule(s) of Law* 357 (Sage, India, 2008).

6 *Id.* at 357-58.

the colonial strategy of power of rule, namely, imposing responsibility, making responsibilities public, disciplining the irresponsible and then punishing them".[7]

However, the processes of search for the 'crime' and locating the 'criminal' hinged on the state furnishing evidence as per the written text of evidence law. Since the evidence law itself was based on reason, as per Samaddar "On the basis of the reason, new forms of power grew, namely, judicial power… Not only was physical conquest the basis of the ascendance of reason, but reason depended on close physical scrutiny of various kind. In this way, the Evidence Act remains the great instance of the physicality of Indian politics".[8] Since the aim of colonial power was to remove the subjectivities of the native society that were prevalent in the Indian society, there was a search for a legal science of evidence that could generate knowledge about facts, relevance and proof. It was realized early enough that the scientific and objective evidence need could only be met by the deployment of suitable technologies for identification of the clan or group of the accused and his personal predilections.

Early sprouting of forensic science in British India

In order to ensure the objectivity of the evidence, with a view to offset the subjectivities of the accused and the criminal justice officials, the colonial administration relied upon the then prevailing techniques such as : (i) anthropometric measurement and (ii) finger printing and photography. The anthropometric measurement worked well in the initial stages, when the administration focused on the communities and caste groups that could be better known through the anthropological and anthropometric methods. Criminality, then, was seen as a trait of the group or the community and the Criminal Tribes Act, 1871 is a product of this kind of approach. But because of the criminal liability being individual centric very soon the anthropometric technique came under disuse. The Inspector General of Police for the Lower Provinces of Bengal, Edward Henry in his Report to the Government of Bengal in 1896 found enough evidence to establish that fingerprints were, less expensive and a surer means of confirming the identity of any given person. As a consequence the Government of India by a resolution in 1897 adopted the system of fingerprinting throughout India. Following this in 1899 the first National Fingerprint Bureau, perhaps one of the first in the world, was set up at Calcutta.[9] The technique of fingerprinting and its success encouraged the colonial administration to repose greater faith on science and technology based evidence collection techniques and go ahead with development of photography with a view to build a typology of criminals for the purposes of establishing a system of surveillance under the Governor Generalship of Lord Canning. But

7 *Id.* at 358-59.

8 *Id.* at 356.

9 Vinay Lal, *Criminality and Colonial Anthropology* quoted by Ranabir Samaddar, *supra* note 5 at 370-71.

because of the 1857-58 Rebellion the photographic exercise on typology of the Indians under the title 'The People of India', had to be shelved and the official project of the state was placed under the Political and Secret Department.

Thus, forensic science that began as a tool of criminal justice to impart objectivity to evidence later turned into a means of surveillance over the Indian people, which could be more appropriately described as forensic security science in the making.

III Democratic criminal justice system and forensic science

As we move from the colonial criminal justice system to the democratic system the underlying philosophy undergoes a change in three prominent respects: *First*, from imposed imperial governance to the governance by a democratically elected government comes in place. In the context of the colonial governance, Lord Macaulay in the early days of the codification of the Penal Code, had observed: "We know that India cannot have a free government. But she may have next best thing – a firm and imperial despotism".[10] *Second*, the rooting of the principles of governance in the Constitution of India, that, apart from adult franchise, accorded guaranteed freedoms and rights to the free citizens, and *third*, in order to provide continuity to the criminal justice system, the Article 372 of the Constitution laid down "all the laws in force in the territory of India… shall continue in force therein until altered or repealed or amended by a competent Legislature…" Thereafter, except for some minor changes the Penal Code and Evidence Act, the colonial laws continued to serve as the basic substantive penal law and evidence laws. Only the Criminal Procedure Code, 1898 was replaced by the Code of Criminal Procedure, 1973. The new procedure law was on the lines of the old law, except the introduction of new measures for speedy disposal of criminal cases, upholding the due process guarantees and according fair deal to the poorer sections of the society. Thus, the triology of the British penal laws continued to rule the citizens for over seven decades, even in the free democratic India. However, on account of the amendments and reforms, here and there, in the Penal Code, Procedure Code and Evidence Act and largely on account of the creative judicial interpretations that suited the altered criminal justice needs and social aspirations, the criminal justice façade was kept intact to a great extent. The creative judicial interpretations fell mainly in the two broad categories : (i) Those that rationalized the colonial penal statutes and the provisions and (ii) Those that subjected the statutory penal laws to the constitutionality touchstone, with a view to bring them in sync with the constitutional aspirations. The first category of judicial interpretations relate to the substantive and procedural penal laws, but here our concern in more with the procedure and evidence laws that are more intimately connected to the forensic sciences. The notable criminal procedure (both under the Criminal Procedure Code,

10 Lord Macaulay's Legislative Minutes, The Black Act No. 10, Geoffrey Cumberledge, 180 (Oxford Univ. Press, 1946).

1898 and the Code, 1973) and the constitutionality of the interpretations can be appreciated better under the following heads.

Exclusive power and supremacy of the police agency to investigate crimes

Under the colonial criminal justice the task of receiving information/report about a crime, conducting investigation and collection of evidence, effecting arrest, search or seizure in crime related property, forming opinion about the 'crime' and filing a report fell exclusively within the domain of the police. Such a colonial conceptualization of overbearing role of the police received an emphatic judicial endorsement at the hands of the Privy Council in the *King Emp.* v. *Khawaja Nazir Ahmed* [11] ruling, thus: [12]

> In India as has been shown there is a statutory right on the part of the police to investigate the circumstances of an alleged cognizable crime without requiring any authority from the judicial authorities, and it would, as their Lordships think, be an unfortunate result of it should be held possible to interfere with those statutory rights by an exercise of the inherent jurisdiction of the Court.

The same line of reasoning has been followed by the post-independence Supreme Court rulings in many cases.[13] However, the only change is that the "statutory right" of the police is being increasingly perceived as an obligation/duty of the police in terms of the democratic ethos. Furthermore, it is the creative judicial interpretations that imparted further rationalizations to the investigatory powers of the police in the later rulings of the Supreme Court.

Ensuring compliance with the constitutionally guaranteed freedoms and rights

(i) Though the Constitution of India provides for a guaranteed right to equality (article 14) right to seven freedoms (article 19), three special rights of an accused (article 20) and a right to protection of life and personal liberty (article 21) from its inception, but the *Maneka Gandhi* v. *Union of India*[14] infused new life into the, more or less, empty constitutional text of article 21. For the first time the Supreme Court full bench, interpreted article 21 that reads : "No person shall be deprived of his life or personal liberty except according to procedure established by law", in a inclusive manner by reading articles 14, 19 and 21 together. The lead opinion of P.N. Bhagwati CJI held that the procedure must be "right, just and fair" and not 'arbitrary, fanciful or oppressive'. The *Maneka Gandhi* rulings interpretation of article 21 became the foundation for a broad and all encompassing reading that became the rallying point for several leading judicial authorities in the 1980s,

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11 AIR 1945 PC 18.

12 *Id.* at 22.

13 *State of W.B.* v. S.*N. Basak*, AIR 1963 SC 447; *State of Bihar* v. *J.C. Saldana* (1980) 1 SCC 554*; Divine Retreat Centre* v. *State of Kerala* (2008) 3 SCC 554 and *Neeharika Infrastructure (P) Ltd.* v. *State of Maharashtra* (2021) 19 SCC 401.

14 (1978) 1 SCC 248.

90's and later on. Much more than this the *Maneka Gandhi* ruling became the starting point for some of the unique experiments with the rights, freedoms and liberties of the citizens, as well non citizens by the apex judiciary.

(ii) The fallout of the constitutionally guaranteed rights/freedoms/liberties has led to questioning the deployment of science and technology for the innovation of the police practices that have a tendency of making inroads into the personal liberty domain of the accused. In the wake of the growing menace of terrorism the police had rampantly resorted to the method of interrogation through narcoanalysis, polygraph and BEAP tests that considerably impaired the accused's decision making capacity. In *Selvi* v. *State of Karnataka*[15] the Supreme Court held that wherever tests that impair a person's decision making capacity involuntarily or without consent, they would violates articles 21 and 20(3), therefore unconstitutional. In order to enable the administration to deploy such scientific techniques, appropriate legislative approval is the best rule of law course.

Openness of the courts to admit scientific and technologically generated evidence

(i) In the 1970's the courts in India relied mostly on the oral testimony coming from the witnesses, but with the advent of science and technology the evidence increasingly became science oriented. In *Yusufally* v. *State of Maharashtra*[16] a tape recorded conversation between the accused and a police decoy was given before the court as a part of transaction or *res gestae* evidence, under section 6 of the Evidence Act. The Supreme Court held that "Like a photograph of a relevant incident, a contemporaneous tape record of a relevant conversation is a relevant fact admissible under Section 6". However, the court in this case sounded a note of 'caution', because of the possibilities of the erasure of such evidence. That is the reason for the Supreme Court in *R.M. Malkani* v. *State of Maharashtra*[17] to lay down three conditions for the user of tape recorded evidence.

The hesitation of the judiciary to the scientific evidence considerably declined in the next few decades when the Supreme Court in *State of Maharashtra* v. *P.B. Desai*,[18] agreed to create an exception to the section 273 of the Cr PC, that mandated every evidence to be taken in the presence of the accused. In the *P.B. Desai* case, the evidence of a foreign medical expert was adduced through video conference in the open court in the presence of the accused and his lawyer, which as per the Supreme Court constituted a valid compliance with section 273. Similarly, exception was created in respect to the imperative rule of section 273

15 (2010) 7 SCC 263.

16 AIR 1968 SC 147.

17 AIR 1973 SC 157.

18 (2003) 4 SCC 601.

in guidelines for court functioning through video conferencing during COVID-19 pandamic,[19] where the Supreme Court observed that until appropriate rules are framed by the high courts, video conferencing shall be mainly employed for hearing arguments whether at trial stage or appellate stage, but only with the mutual consent of both the parties.

(ii) However, the strides in biological and biochemical sciences that opened up a new world of genetic information relating to human cell, revolutionized the field of evidence used for the medical as well as the legal inquiries. Blood group test, DNA and RNA tests became the new recognized ways of determining paternity that may be the basis of proving adulterous relationship, determining inheritance or maintenance actions and establishing the legitimacy of a child. But the most contested and controversial has been the deployment of DNA science evidence to dispel the conclusive presumption of legitimacy provided under section 112 of the Evidence Act that reads "Child born during the continuance of a valid marriage between his mother and any man, or within two hundred days after its dissolution, the mother remaining unmarried, shall be conclusive proof that he is the legitimate son of the man, unless it can be shown that the parties had no access to each other at any time when he could have been begotten". Such conclusive presumption of legitimacy was contested by a father through a prayer before the court to order the blood test of his child. The Supreme Court in *Gautam Kundu* v. *State of W.B.*,[20] declined the prayer, holding, that the presumption can be dispelled only by a strong non access evidence. Later in *Kamti Devi* v. *Poshi Ram*[21] the legitimacy presumption was directly tested in the light of the DNA and RNA test evidence. The Supreme Court held that even such scientific evidence could not entitle a party to escape from the conclusiveness of section 112, if the parties had access to each other. The law is enacted with a view to favour the innocent child against the bane of being basterdized. However, the Supreme Court appeared to be shifting in favour of the scientific evidence in later cases where the function of marriage or the marital relations or inheritance was in question. The most controversial issues arose where the scientific evidence came in conflict with the statutory presumption of legitimacy of the child. The Supreme court in *Nandlal Wasudeo Badwick* v. *Lata N. Badwick*[22] had decided to make a conscious shift in favour of the scientific evidence by holding that in the event of a conflict between "conclusive proof" based on a presumption and a proof based on a scientific advancement accepted by the world community to

19 (2020) 6 SCC 686.

20 (1993) 3 SCC 418.

21 AIR 2001 SC 2226.

22 AIR 2014 SC 932.

be correct, the scientific evidence must prevail, thus, overruling the legitimacy of the child presumption as an outdated relic of the past. In the *Nandlal Wasudeo* case the DNA test had shown that the petitioner was not the biological father of the girl child for whom the respondent had filed a joint maintenance application/ case. Reposing complete faith or the DNA report the Supreme Court had no hesitation to rule in favour of the petitioner.

The story of conclusive presumption of the legitimacy of the child in terms of section 112 (new section 116 of Bharatiya Saksha Adhiniyam, 2023) versus the DNA/RNA test evidence is kept alive by the recent Supreme Court decision in *Aparna Ajikya Firodia* v. *Ajinkya Arun Firodia,*[23] where a divorce petition of the husband on ground of adultery and paternity of the child had been upheld by the family court and the high court. The wife in her appeal before the Supreme Court objected to submit her child to DNA test for settling the divorce petition. In the Supreme Court V. Ramasubraminian and J B. Nagaratna JJ wrote separate concurring judgments for upholding the appeal, to reverse the lower court findings and decide in favour of the wife. The Supreme Court, perhaps for the first time, viewed the statutory presumption of legitimacy of the child in the light of his privacy, autonomy and dignity to arrive at a conclusion that the legitimacy presumption should not ordinarily be disturbed by deployment of DNA test, unless there is no other evidence to prove the disputed contentions of the parties, thereby refusing the husband's prayer to order the mother to submit the child for DNA test.

IV Broadening horizons of criminal justice and forensic science

A notable feature of the post-colonial development, both on the criminal justice and the forensic science fronts has been, their all round expansion that can be described as "boarding of the horizons".

The expanding domains of the criminal justice

Though the Article 372 of the Constitution of India, nicknamed as the "adaptation clause", did provide a new lease of life to the colonial penal laws that continue to rule us, in a way, till the present day. But on account of the constitutional rights network and the human rights regime, the hegemony of the colonial penal laws in course of time got considerably diluted. The Constitution and the human rights had a decisive influence on the legislative reforms, both in the amendments the provisions of the existing penal statutes, as well as the enactment of new penal laws. Equally significant has been the route of the judicial reforms, coming from the apex court rulings, that have interpreted the constitutional rights and the statutory measures in the light of the changed social and political context, one the one hand, and augmentation of the

23 2023 SCC OnLine SC 161.

ambit of the old rights by creating new remedies and generating reliefs, on the other. Hereafter, we discuss a few notable judicial reform rulings, thus:

(i) *Rulings re-setting the boundaries of offences on the basis of the constitutional touchstone*

In the *Independent Indian Thought* v. *Union of India,*[24] section 375 exception 2, Penal Code, that exempted the husbands non-consensual sexual intercourse with a wife aged about 15 years from the offence of rape. As every wife between the age of 15 to 18 years, is a child wife, in terms of the Convention on the Rights of Child,1989, the 'marital exemption' was challenged. The Supreme Court held that the exception 2, is unconstitutional, so for any prosecution for the intercourse with a 'child wife' is concerned, the apex court devised a reading down technique, limiting it to "sexual intercourse" with a wife above 18 years of age".

The second ruling on this line is the five judge bench in *Navtej Johar* v. *Union of India*[25] that resolved the issue raised by a clutch of 48 Petitions filed by several groups of the LGBT community affected by the reversal of the *NAZ Foundation* v. *NCT of Delhi* [26] by a bench of the Supreme Court. The challenge before the court centered round the wide, indiscriminate nature of criminalization arising on account of the section 377 of the Penal code that applied to every kind of homosexual relationship. The five judge bench ruling, unanimously struck down the criminalization of homosexual relationship between the consenting, adult partners in privacy, thereby restricting the ambit of a long accepted colonial law that worked on the basis of a un-scientific bias against the large section of marginalized population.

The third ruling in this line is *Joseph Shine* v. *Union of India*[27] where the five judge bench was required to test the constitutionality of section 497 or the offence of adultery under the Penal Code. Though the petition had sought uniformity in the adultery offence by questioning the female partner's exemption from liability, but the bench unanimously ruled that the very act of criminalization of adulterous relationship was itself unconstitutional, because section 497 postulates a notion of marriage which subverts equality between the spouses.

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24 (2017) 10 SCC 800.

25 (2018) 10 SCC1.

26 (2009) 6 SCC 712 overturned in *Suresh Kumar Koushal* v. *Naz Foundation*, AIR 2014 SC 563.

27 (1980) 2 SCC 684).

(ii) *The constitutional rarefication of death penalty*

Though the Supreme Court continues to uphold the constitutional validity of the death penalty right through the first challenge *in Jagmohan Singh* v. *Union of India,*[28] full bench decision in *Bachan Singh* v. *Union of India*[29] and the decision in *Triveniben* v. *Union of India,*[30] but in every case of constitutional challenge the court has been tightening the noose against death penalty sentencing. The *Bachan Singh* majority ruling of Sarkaria J is known for upholding the constitutionality of death penalty but subjecting its applicability only to "rarest of rare cases" and this "rarest of rare case" test is to be arrived after balancing the 'aggravating circumstances' with the 'mitigating circumstances'. The creative potential of the *Bachan Singh* ruling was later on relied upon by the Supreme Court in *Santosh Kumar Bariar*[31] and now the *In re Framing the Guidelines Regarding the Potential Mitigating Circumstances to be Considered While Imposing Death Sentence.*[32] This reference decision of Ravinder Bhatt J (concurred by U.U. Lalit CJI and Sudhanshu Dhulia J) has focused on the issue of the nature of compliance with the requirements of Section 235(2) of the Cr PC by the trial courts in death penalty cases.

(iii) *Fair trial based on 'flawed' forensic testimony earns Anokhilal acquittal after thirteen years in the 'death row'*

Anokhilal case is a classic example of how a fair trial guarantee works in the criminal justice system and can yield to an accused convicted and sentenced to death in 2013, acquittal after thirteen years. Initially in February, 2013 Anokhilal a poor villager in Khandwa, M.P. was prosecuted for rape, murder and aggravated POCSO offences, put on trial that was completed in less than a month, after conviction the accused was sentenced to death. The High Court of Madhya Pradesh confirmed the death sentence in the next three months. In the appeal before the Supreme Court the three judge bench in *Anokhilal* v. *State of M.P.*[33] after a detailed deliberation on the issue of compliance with the fair trial requirements ordered a de-novo trial in the case. In the re-trial hearing before the special Judge POSCO Act, Khandwa,[34] a team of four lawyers join Project 39A of the National law University Delhi, had represented Anokhilal. The advocacy was centered around the inadequacy of evidence to support the prosecution case based on the 'last seen with the victim' evidence and the flaws in the forensic evidence. The special judge in para 173(d) has pointed out. "DNA of

28 (2019) 3 SCC 39.

29 (1971) 1 SCC 20.

30 (1989) 1SCC 678.

31 (2009) 2 SCC (Cri) 1150.

32 A Three Judge Bench Reference Sep.r 19, 2022.

33 (2019) 20 SCC 196.

34 Prachi Patel, Special Judge POSCO Act Khandwa M.P., CNR No. MP120100190/2013 decided on Mar. 19, 2024.

another man has been found in the vaginal slides and the anal slides of the deceased, which conclusively proves that the crime of rape was not committed by the accused Anokhilal".[35] Again in para 176 the judge reiterates that "*the above report has been prepared by scientists based on machines, which is completely absolute evidence. The likelihood of such evidence favouring either the prosecution or defence is zero…* Therefore, contrary to all the evidence in the case, the accused in entitled to get the benefit of DNA report of PP-58 which establishes the involvement of any person other than the accused in the crime of rape".[36] Thus, Anokhilal gets acquittal, for all the offences for which he was charged, on March 19, 2024. He walks back as a free man, now aged 34 year, after over 13 years of initial arrest, trial, conviction, death row detention, because the flaws in the forensic testimony proved fatal to the POCSO Act trial.

Developing linkages between criminology and forensic science

It is coincidental that by the time the colonial rule was coming to an end, the United Nation's had started taking keen interest in crime and its scientific understanding. With this end in view, the First United Nations Congress on the Prevention of Crimes and Treatment of Offenders, was held in 1955 and the UNESCO Report 1957 laid emphasis on the teaching of criminology and criminal justice administration at the college and university levels world over, for which they had arrived at a consensus in a Symposium at London in 1955. K. Chokalingam in the recently published comprehensive article : "Emergence and History of Criminology : A Global and Indian Perspective"[37] has opened up many trails of inquiry, such as the genesis and growth of the discipline of criminology in India, linkages between criminology and sister disciplines, the role of the Indian Society of Criminology in nurturing the professionals drawn from the diverse allied streams *etc.* The paper has assiduously traced the record of the linkage between criminology and forensic science in the departments of the universities of the North and the South. The article mainly focuses on the post 1950s resurgence of scientific criminology, that is explained by, first, the focus, going to the Department of Criminology at the Sagar University Madhya Pradesh in 1959, followed by the later developments in the universities of the south, particularly the Madras University and the Madras Medical College. Chokalingams account of the combined criminology and forensic science course, starting with a one year part time Diploma Course at the Madras Medical College in 1961 and later turning into a Two year Full time Masters Degree Course in 1965, at the same location is insightful. The growing popularity of the combined criminology and forensic science can be on account of the excellence of the course planning and

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35 *Id.* at 45.

36 *Id.* at 46 (emphasis added).

37 K.Chokalingam, "The Emergence and the History of Criminology : A Global and Indian Perspective", *Indian Journal of Criminology*, National Law University Delhi at 23-40 (Spl. edn. 2023).

also because of the growing attraction towards science and technology for explaining crimes. Equally insightful and interesting is how the 1967 Batch of the Masters Degree Course students initiative, to set up a Criminology and Forensic Science Study Circle that ultimately culminated in the founding of had Indian Society of Criminology in 1970, which was attached to the Department of Psychology at the Madras University. This also is an evidence of the close linkage between the discipline of criminology and forensic science. The linkage not only forged deep academic bondage but also led to an understanding between the criminology and forensic science, teachers and students and the police and forensic science professionals. Thereafter, in 1974 a Master in Criminology and Forensic Science Course was started at the Department of Psychology, Madras University, which came under an independent Department of Criminology under the Madras University in 1983. The paper has traced the growth of criminology in the north and the west, particularly the Tata Institute at Bombay, that has followed a different path of criminological inquiries, with which we are not concerned here. Our inquiry here centers around the inter-disciplinary linkages, particularly between criminology and forensic science.[38]

However, after the creations of the Department of Criminology in the Madras University in 1983, the subject of criminology experienced significant expansion by developing linkages with the other social sciences, law and the criminal justice administration. At times, these expansions in the field of criminology were at the cost of the forensic science linkage, which was to some extent made up by the common platform of the Indian Society of Criminology(ISC), that had by then developed a few good traditions like providing opportunities for airing their common concerns and professional anxieties, as well as for seeking recognition for the good work in the discharge of their professional responsibilities. Despite the palliatives provided by the common forum of ISC regional meets and annual conferences, the disciplines of criminology and forensic science continued to grow in their grooves and drifting apart in the course of their disciplinary journeys.

Independent growth of forensic science

Hitherto, the forensic science has grown, either under the shadow of the criminal justice, as "forensic evidence science" or under the shadow of criminology, as a science to establish the causes of crime, in the tradition of biological determinism or psychological determinism or sociological determinism or economic determinism. But the year 2019 can be identified as the watershed year from the point of view of the reforms in the criminal justice system, particularly forensic science, pursuant to a decisive shift in the thinking of the dominant rightwing political outfit. The key components of such a shift are : *First*, a compelling desire to shed the colonial legacy by upholding the spirit of national pride, *second*, strong need to connect the criminal justice system to the prevailing majoritarian mood and aspirations, and *third*, to impart

38 *Id.* at 29-33.

scientific and technological orientation to the archaic criminal justice system. Decoding the aforesaid three components further, particularly in the context of forensic science knowledge, the rulers had realized quite well that the 'Colonial Criminal Justice sought forensic science services for securing 'power' through legitimacy, but the democratic Constitution – centric criminal justice had to remain in search of credibility in the eyes of the citizen'. Furthermore, 'the scientific proof and explanation of crime and criminality has a greater appeal in the eyes of all the stakeholders'. *Finally*, 'in order to become appropriate criminal justice system of the Viksit Bharat that could compete with the best in the world, the processes must place greater reliance on speed, fairness and determinism'. With these ends in view the science and technology input has been greatly enhanced in the post 2019 period, which can be witnessed in the following notable developments in the forensic science domains.

(i) Forensic science knowledge augmentation with the proliferation of the new forensic science courses

The forensic science knowledge and awareness has remained low, because earlier, the forensic science was understood and applied as a 'talisman', to be used in the interest of the holders of power in select cases. Therefore, the post 2019 started its justice reform shift by creating objective and scientific education about the concept of universal forensic science for all. This vital task of the forensic science knowledge augmentation is assigned primarily to the National Forensic Science University, Gandhinagar (Gujarat), which is accorded a National University and Institute of National Importance status in 2020, along with the six adjunct campuses and two academies by now. The Gandhinagar NFSU runs eight schools that offer 46 courses in forensic science and allied subjects and serves as the nodal institution for coordinating studies in forensic science throughout the country. In addition to the network created by the NFSU institutions, forensic science knowledge is disseminated by the Directorate of Forensic Science Services, New Delhi and the Central Forensic Science Laboratory, Pune. This vast network of institutions remains actively engaged in imparting courses on DNA Forensics, Cyber Security, Ballistics, Questioned Documents, Narcotics, Forensic Psychology, Food Technology, Multi-media Forensics, Forensic Accounting and Fraud Investigation, Digital Forensics and Futuristic Defence Studies.[39]

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39 Based on the information culled out from a Forensic Science Knowledge up-date prepared and made available by Purvi Pokhariyal, Dean, School of Law, Forensic Justice and Policy Studies, at the NFSU, Gandhinagar. Purvi Pokhariyal is the key person responsible for the coordination of forensic science education and the institutional infrastructure. Her strong knowledge base in law and Criminology (currently she is the Chairperson of the Indian Society of Criminology) makes her the right person for spearheading the current forensic science resurgence.

(ii) Creation of the forensic science normative framework

In order of impart a forensic science orientation to the criminal justice system and the agencies responsible for its operation, it was realized that for bringing about a lasting change the normative system would require substantial changes, particularly in the procedural and evidentiary domains. The government had by then considered it appropriate to begin the normative re-structuring by introducing the Criminal Procedure (Identification) Bill in the Parliament in early 2020. The Identification Bill aimed at conferring powers to the enforcement agencies to take measurements of the criminals and prospective criminals as per the provisions of the Criminal Procedure (Identification) Act, 2022. The Identification Act, 2022 as per section 2(b) authorizes a wide range of "measurements" such as 'finger impressions', 'palm impressions', 'foot impressions', 'photographs', 'iris and retina scan', 'physical and biological samples and their analysis', 'behavioural attributes including signatures', 'hand writing or any other examination'. Similarly, the Act under section 3 defines the three categories of persons in a loose and inclusive manner, by going much beyond the "convicts" whose measurements were authorized by the Identification of Prisoners Act, 1920, that stands repealed by section 10 of the Act. The two new categories whose measurements are authorized by the sub clauses (b) and (c) of section 3, are person who are ordered to give surety for good behavior under section 117 or are facing proceedings under section 107 to 110 of the Cr PC or any person who is arrested in connection with an offence under any law or detained under any preventive detention law. Thus, the persons enumerated in sub clauses (b) and (c) are non-convicts or may be acquitted in the end, but their measurements may be collected and preserved in terms of section 4(1)(b) at the National Crime Records Bureau. As per section 4(2) the measurement records shall be retained in digital or electronic form for a period of 75 years, but in cases of final acquittal or discharge the concerned person may seek the records be destroyed. The Identification Act, 2022 not only expands the forensic science boundaries to the new and sophisticated kinds of measurements, but extends it much beyond the domains of the crimes in pre-trial and trial stages, also to the pre-crime stages where the person is facing security or good behaviour proceeding or is just an arrestee or detenue who may be shortly acquitted.

The Identification Act, 2022, is like a precursor to the comprehensive infusion of the forensic science component that is followed in the Bharatiya Nagrik Suraksha Sanhita 2023(BNSS) and the Bharatiya Saksha Adhiniyam 2023(BSA). The BNSS norms relating to forensic science are spread over in the pre-trial and trial stages and are aimed at imparting (i) Expedition to criminal proceedings and (ii) Enhancement of their credibility with the use of forensic evidence. The first aim of expedition is provided for by section 65 (use of science in summons procedure), section 105 (search and seizure through scientific means), section 193(3)(a) (all communications

between police and magistracy to be electronic), sections 210, 215, 265, 308 and 330 introduced to speed up the criminal proceedings. Unlike the first aim, the aim of enhancement of the credibility of criminal proceedings by relying upon the forensic science evidence is the underlying philosophy of section 176(3) which mandates that for the investigation of all the offences punishable with seven years or more, on the notification of the state government in this regard, the concerned officers shall cause the forensic experts to collect forensic evidence in regard to the offence and also cause videography of the process in mobile or other electronic device. The proviso to these provisions provides the alternative of relying upon the forensic evidence facility available with any other state. The introduction of this new provision will create a new credibility for forensic evidence in the eyes of the States and the investigation system officials. But why investigation of below seven year imprisonment offences has been exempted from the mandate of section 176(3)? Because offences punishable with less than seven years, constitute the bulk of offences and forensic science expedition and precision is vital for cutting down on delays in all these case disposals as well as for a wider dissemination of the message of better credibility of forensic science evidence.

Coming to the BSA, the forensic science evidence from any source has now been accorded emphatic recognition under section 2(d) defining "document" that includes electronic and digital records. Similarly, under section 2(e) "evidence" is defined to includes under (ii) electronic or digital records, which can be called as documentary evidence. Further elaboration of documentary evidence is evident in section 57, explanations 4, 5, 6 and 7 that accords a primary evidence status to all the electronic and digital records in different stages of generation. In order to dispel any doubt about the admissibility and credibility of electronic and digital record special provisions under sections 61 to 63 have been created. Furthermore, to impart special status and credibility to electronic and digital evidence special rules of presumptions under section 81 (presumption as to Gazettes in electronic or digital records), section 85 (presumption as to electronic agreements), section 87 (presumption as to electronic signature certificates) and section 93 (presumption as to five year old electronic records).

Though the BSA has created new provisions for recognizing electronic and digital evidence "by according them their due" status, but it has missed out on paying much attention to the sources from which the electronic and digital evidence is generated. The new section 39 is framed mostly on the lines of section 45 of the old Act, which is mainly concerned with the relevance of the third party (expert) evidence. That appears to be the reason for section 39 repeating the earlier section except the addition of words "or any other field" in section 39(1) and the addition of sub clause (ii) to make the opinion in any electronic or digital form before the court a relevant fact as an expert evidence. The BSA has neither provided any definition of a "forensic

expert" nor laid down any criterion for higher credibility for forensic expert evidence. This appears to be a contradiction in respect to what is professed and what is normatively provided.

V Alternate rationalization of crime, re-orientation of criminal justice and shift of focus to pre-crime stages: Their impact on the criminal justice and forensic science

In part IV earlier, the focus was on the trends of 'expansions' or 'broadening of the horizons' of the criminal justice, as well as the forensic science, but there the trends were perceived in the light of accepted conceptualizations, almost uncritically. Here, the focus shifts to the new and innovative ways of conceptualizing crimes, techniques of their identification and measures of controlling them, which in turn gets reflected into the altered notions of the criminal justice and the forensic science.

The theme of alternate rationalization of crime, re-orientation of criminal justice and shift to pre-crime stages in the English Criminal Justice System has been examined by Lucia Zedner in chapter 8 titled as 'From Criminal Justice to Security Society', in her masterly treatise on Criminal Justice.[40] The chapter is prefaced by an imaginary conversation about a 'pre-crime', society where people are arrested before they break any law. This is in anticipation of their breaking the law in future. The supporter of pre-crime system boasts : 'Happily they don't because we get them first before they can commit an act of violence. So the commission of crime itself is absolute metaphysics. We claim they are culpable…' 'In our society we have no major crimes'… 'but we do have a detention camp full of would be criminals'.[41]

Lucia Zedner's ideas on the alternate thinking about criminal justice are structured around the three notions, namely

(i) Re-conception of crime on the basis of the rational choice theory that perceives 'crime' not as a pathological or poorly socialized person's act, but an act indulged for utility maximization. Thus, crimes are no more seen as threats to the moral order that need punishment, but imposition of calculable cost. The orientation around calculable cost of crime, entails a shift from retrospective crime concern for punishment to prospective concern with the future offences. Such economic analysis de-dramatizes crime and presents it as an ordinary activity to which individuals are exposed in everyday life.[42]

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40 Lucia Zedner, Ch. 8 "From Criminal Justice to Security Society" *Criminal Justice* 283-311 (Oxford University Press, 2004).

41 *Id.* at 283 (Part of P.K. Dick's Minority Report, London : Gollancz 2002 at 2-3).

42 *Id.* at 284-287.

(ii) Changes in the orientation of criminal justice that takes the focus away from the sovereign's right to punish, replacing it with sovereign's promise to secure protection. This reverses the orientation of criminal justice from the classical backward looking to a prospective protection oriented processing. In the altered criminal justice the policing have to assume a preventive, deterrent and innovative position. Thus, in such a dispensation: "the shift towards prevention, surveillance and security has been the subject of considerable criminological attention."[43] As per Lucia Zedner there is a growing divide between the 'Old Penology' and the 'New Penology'. The 'New Penology' is emerging: 'it is actuarial. It is concerned with the techniques for identifying, classifying and managing groups assorted by levels of dangerousness'. The focus is on targeting suspect populations and making actuarial assessments of their likelihood of offending in particular circumstances or when exposed to certain kinds of opportunity.[44] (iii) From 'post-crime' criminal justice to 'pre-crime' society, shifts the focus to prospective concern for risks as yet unrealized. "This will entail a move in substantive focus from workings of criminal process, trial and punishment, and towards the physical environment and opportunity structures in which crime is committed."[45] The pre-crime strategies would largely depends upon situational crime prevention that would require the criminal justice agents to move outside the criminal process like the new technologies of control and prevention that includes environmental design, street architecture and planning of urban spaces. All the pre-crime actors are supposed to share and take away the exclusive right and power away from the state and locate it in the community or the corporate entity. Already a strong pro-market lobby has come to support private provisioning of the security.[46] In her succinct conclusion to the growing reality of movement towards 'security society', away from the 'punishment state', the author sums up, thus: "The expansion of security industry has enlarged not diminished the penal state. And though security is posited as a universal good, its pursuit tends to exclude those deemed as risks, erodes civil liberties, and corrodes trust, the very cement of civil society".[47]

Extending boundaries of the Indian criminal justice and forensic science to the 'pre crime' stages

Even the English Criminal Justice System, that has a much longer history of evolution, is facing accusations of over criminalization and expanding the ambit of criminalization by the devices such as 'hybrid criminalization' in the writings of the scholars such as

43 *Id.* at 289.

44 *Id.* at 288-296.

45 *Id.* at 297.

46 *Id.* at 296-304.

47 *Id.* at 305.

Andrew Ashworth[48] and others. Therefore, there should be little surprise if the Indian criminal justice, in the process of shedding the colonial criminal justice legacy, under takes to re-adjust and re-configurate the boundaries of the 'crime' and 'criminal justice' by enacting penal statutes with a view to streamline its security. Since, the purpose here is limited to tracking the widening and shifting trajectory of criminal justice as well as forensic science, our focus would be on the penal statutes that have a tendency to either push the boundaries of the offence to the 'pre-crime' stages or to the forensic evidence that lies outside their known spheres treaded by the traditional criminal justice.

Before a behaviour is formally designated as 'crime' by the legislature, it may remain in the 'name and shame' or 'name calling' stages. 'Urban naxals', 'land jihadi', 'love jihadi' and 'desh-drohi' *etc.* are the commonly used labels belonging to this genus. But for how long and for what purpose a 'flawed behaviour' remains in 'name calling' stage is a part of the deviance policy, though it does have significant bearing on the regulation and control of the behaviour. It may be interesting to learn quite a few lessons from how the out of the box imagination of the label 'love jihad', has had wide ranging ramifications. *First*, it became the rallying point for the enactment of several State anti conversion laws, under which forcible religious conversion for the purpose of marriage is made a serious crime, apart from declaring the inter faith marriage "null and void".[49] *Second*, 'Love Jihad' also becomes a hot cinematic theme, that can be cashed on the box office by making a full length film : The *Kerala Story*, depicting the trickery and fraud involved in a majority of interfaith marriages in the Kerala State. *Third*, the 'love jihad' folk lore itself becomes a powerful divisive device that can influence the mindset at all the levels of the society. A recent study conducted by the *Indian Express* relating to the differential responses of the High Court of Allahabad benches, in respect to the police protections extended to the interfaith married couples is very revealing. Out of the 15 orders passed on the petitions from the interfaith live in couples for the police protection filed before the six benches, in 12, the high court benches denied to order protection, only in three the protection by the police was ordered.[50]

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48 Ashworth, Andrew, "It the Criminal Law a Lost Cause?" 116(2) *LQR* (2000).

49 Under the U.P. Prohibition of Unlawful Conversion of Religion Act, 2021 between Jan. 1, 2021 and Apr. 30, 2023, 427 Conversion related cases were reported in U.P. State, leading to the arrest of 833 persons. The Hindu Bureau Agency, *The Hindu* Apr.18, 2024.

50 "Can U.P. inter-faith Live-in Couples get police protection? Yes, no, may be." *Indian Express* Apr.18,2024.

Such a divided view of things that concern the constitutionally guaranteed freedoms and choices does not auger well for the interfaith married couples and for the democracy.

The same kind of 'pushing the boundaries effect' may be created for criminal justice and forensic science by the promulgation of an order by a district magistrate/executive magistrate under section 144 Cr PC (now section 163 BNSS). The order is a part of public order policing, which may last up to a period of two months, subject to its extension up to six months. An interesting study relating to the deployment of section 144 in Delhi conducted by a team of four lawyers appropriately titled as "When Law Creates Crimes"[51] has revealed the wide ranging implication of the naive looking section 144, for the criminal justice and forensic science. The study focused on the post-COVID one year under section 144 orders in the NCR, Delhi. The study is based on RTI responses to 6,100 orders, of which 5,400 were inspected in respect to the reasons of their issual, which were classified into four categories the first category of 25% section 144 orders were issued to private establishment directing them to install CCTV cameras to different sensitive points with a view to establishing a parallel surveillance system. In the second category of 43% of orders under section 144 were issued to regulate business and services through a range of directions for compulsory registration and recording of documents about tenants, labourers/servants/employees, before providing job or accommodation. The purpose of these orders/directions is to treat the entire service class population as potential criminals, who require constant monitoring and surveillance.[52] The third category of orders were limited to public order threats such as unlawful assemblies and activities that threatened the interest of the society in a special way like flying kites with "special manjhas" or "bursting crackers". In the fourth residuary category falls self effacing activities like hookah bars or harmful addictions that worked against the interest of the society in the longer run. This short study on section 144 orders, targets a wide section of Delhi population, particularly the marginalized sections, in the pre-crime zones. Similar push into pre-crime zone may arise on account of many other loosely worded laws that leaves wide discretion on the hands of the enforcement agencies.

The digitalization and the artificial intelligence (AI) twist

The already over-burdened domain of forensic science has to now contend with yet another technological marvel created by the AI. The author calls the domain of forensic science 'over burdened', because of the on-going re-configuration of the disciplinary boundaries of the "forensic evidence science", particularly with the "forensic security science". While the majority of the forensic science scholars are

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51 Vrinda Bhandari, Abhinav Sekhri, Natasha Maheshwari and Madhav Aggarwal, "When Law creates Crimes", *Times of India* city edn. Apr.24,2023.

52 *Ibid.*

still at the stage of creating a respectable space for the forensic evidence within the criminal justice system, only a few have started to envision the far reaching implications of a broader vision. Sharing the views of the front rank forensic science scholars like Purvi Pokhriyal and D.K. Goswami may be apposite in this regard. Pokhariyal views that "On the face, forensic evidence means evidence derived from the use of a field of science or the scientific method in order to investigate and prove crimes. Forensics, often referred to as 'criminalistics' does have its own shape in changing the contours of the criminal justice system".[53] Yet at other place Pokhariyal relates forensic evidence to 'fairness', thus : "Forensic evidence emerges as beacon of hope ensuring fairness in investigations, which are the foundation of a fair trial. Forensic experts provide impartial, compelling, and scientific evidence that supports the sequence of events, with the ultimate goal of ensuring flawless justice. This blending of science and justice gives rise to the concept of forensic justice, a dynamic and evolving field that aims at to harmonize scientific methods, legal principles and ethical considerations"[54] Likewise, Goswami also considers forensic science as a tool for facilitating criminal justice, thus : "Since evidence collection paves the way of fair trial, fairness in investigation must explore the trajectory to transform the existing methods of evidence gathering where evidence may evolve as a 'tool in pursuit of truth' rather than merely a 'tool to prove prosecution story'; and must evolve a roadmap to transform 'presumptive or hypothetical justice' into 'categorical justice' by promoting scientifically approved 'participatory democratic process of investigation."[55] However, the forensic science strides in the domains of "forensic security science" are still shaky and tentative. Though the Criminal Procedure (Identification) Act, 2022 has created a wider normative structure to pick forensic evidence from a broader category of prospective criminals (more on the lines of the distinct, dangerous, and demonizable persons in Lucia Zedner's actuarial justice conceptualization in part V), record and store such evidence as per section 4, there is no unanimity amongst the forensic science scholars, on the issue of acceptance of the "forensic security science" expression, as yet. In this context Pokhariyal's this observation needs consideration: "The paradigm shift in the criminal justice system also raises ethical considerations and challenges. Protecting privacy rights, ensuring data integrity, managing biases in algorithms and forensic techniques and addressing the digital divide are crucial aspects that need careful attention."[56] Above all taking the forensic science system beyond the Constitution protection threshold would always remain suspect.

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53 Purvi Pokhariyal, Gaurav Jadhav and Deepa Dubey, "Redefining Justice : The Transmutation via Tenets of Forensics" in Taylor and Francis (ed.) *Forensic Justice* 125 (Routledge, 2024).

54 Purvi Pokhariyal, Deepa Dubey Ch.2 "The Imperatives of Forensic Justice in Modern Legal Systems : A Comparative Analysis," *Forensic Justice and Human Rights* 4 (NHRC, 2023).

55 G.K. Goswami, "Fair and Participatory Investigation : The New Paradigm Towards Internal Police Reforms" in Shanker Sen (ed.) *Police Reforms* 154-55 (Annugya Books, 2016).

56 Purvi Pokhariyal, *et al.*, *supra* note 53 at 124.

The add-on AI burdens

To begin with AI came into the forensic science fold with all its beneficial effects relating to speed, data systematization, trans geographical accessibility, but very soon it started revealing its seamy sides. It is true that AI has helped the security and police agencies in the prediction of nature and regions of crimes, crime control planning considerably. But each crime incident being unique, the same control solution may not fit all. Furthermore, AI data may suffer from data bias and may often transcend the Constitution and human rights limitations. This has become all the more urgent, because the AI operates in its own digital sovereignty domain, transcending even the territorial sovereignty domain which raise legal as well as ethical issues.

VI Futuristic projections of the criminal justice and forensic science debates

From the point of view of criminal justice and forensic science the post July, 2024 era is likely to be an era of far reaching happenings and new possibilities. This has been possible mainly because of three reasons, namely : *First*, never before, the criminal procedure and criminal evidence law have been subjected to such a comprehensive normative changes; *Second*, never before, the science, technology and electronics were deployed for imparting such a change in the orientation of this criminal processes and; *Third*, never before, such unanimity and political will to bring about the changes in the criminal justice system had been displayed. As a consequence, in less than a years time, after their notification, the three penal laws : The Bhartiya Nyay Sanhita, 2023, the Bharatiya Nagrik Suraksha Sanhita 2023 and the Bharatiya Saksha Adhiniyam 2023 would be the penal law of the land, on the basis of which the police and allied agencies would be required to conduct investigation, the prosecution would perform the prosecutorial role and the magistracy would perform their dual pre-trial and trial stage roles. It is important here to keep in mind that in the earlier dispensations the forensic science or forensic science experts had little recognition, but in the new dispensation with the explicit assignment of role to the forensic experts in the criminal justice would demand the creation of due space for them, as well.

The task and challenges pertinent to the ushering in of the new penal laws

The bold initiatives undertaken in the foundational reshaping of the criminal justice system is bound to give rise to a few tasks, in the immediate and in the long term, as well as some challenges, which would be briefly adverted to in the foregoing pages :

(i) *Creating awareness and imparting training*

Now that the reshaping of the penal laws is complete, the first task is to create comprehensive awareness about changes and their legislative intent amongst the masses or the real stakeholders, because it is they who would be affected by the new laws, either as victims, or victimizers or the witnesses. Then would come the

secondary stakeholders like prosecution and defence advocates the legal academics, who will bear the responsibility of understanding, analyzing and applying the new laws to the disputes at the ground. In regard to the ways of the creation of awareness, one can think of the new law pamphlets, on the key substantive, procedural and evidentiary issues. Such pamphlets can be prepared officially or in coordination with the NGOs. Print media articles and visual media debates could also help in the creation of awareness. Also the law schools and universities can be encouraged to take up the responsibility of creation of awareness for the new penal laws.

The second, and the more engaging aspect of the creation of awareness in the training and imparting skills to the diverse agencies handling the task of the enforcing the reshaped penal laws, Amongst the agencies the police, as the first point of contact between the raw crime reality and the criminal justice machinery. The police agency, right from the beat constable at the ground level to the network of official right to the top need to be sensitized and trained in respect to the reshaped penal laws. As a resident of the State of Uttar Pradesh, the author had the privilege of participating as one of the resource persons in a Workshop for the Senior Officers of the State Police on the New Penal Laws, organized by the Directorate of the Police Training, Lucknow, on March 6, 2024. The author appreciates that the holding of such a workshop must have required lot of planning, location of resource persons and bringing them all together for organizing a day long Workshop and is sure that the organizers fully realized that the real purpose of the workshop was to initiate a debate on the key issues that could be later worked out into smaller work manuals or SOPs for the ground level officers. Earlier this year the Bureau of Police Research and Development Delhi (BPRD) had organized a two and a half day Sensitization Programme on the New Penal Laws for the Delhi Police and other Union Territory Officials. The resource persons there undertook the problem based exposition of the key changes in the substantive and procedural penal laws. It is hoped that the problem based training modules has proved more effective in creating awareness about the reshaped penal laws.

(ii) *Re-structuring of the criminal justice agencies, with a view assigning a specific space to the forensic science experts*

The colonial criminal justice distributed the criminal justice powers between the police and the magistracy only. On the Law Commissions' recommendation of the separation between police and prosecution,[57] the Code of Criminal Procedure, 1973 for the first time recognized the principle of separation between the police

57 Law Commission of India, 14th Report, "Reform of Judicial Administration" Vol. II at 770, para 15 (1958).

agency and the prosecution agency. In the course of time by the amendments of 2005, 2009 the prosecution agency was made distinct. Now the section 25A enables the state to establish a Directorate of Prosecution. On the same lines, why today is not the right time to think in terms of creating a distinct Forensic Services Agency/ Directorate of Forensic Services, that will, in collaboration with the police and prosecution agencies, be primarily responsible for the collection, presentation and analysis of every forensic evidence in a criminal case. The creation of a distinct agency for handling all the forensic evidence would require amendment in the existing BNSS and the BSA or may be undertaken through a comprehensive Forensic Services Adhiniyam, but such a re-structuring of agencies is the need of the hour.

(iii) *Recognizing forensic science expertise as a distinct function/competency requiring statutory allocation to a particular agency*

Herbert Packer in the context of the United States Criminal Procedure has aired the idea of 'The Allocation of Competences' in his book *The Limits of the Criminal Sanction*.[58] According to Packer every criminal justice agency is expected to strictly perform the function for which the statute has assigned competence to it after due deliberation. Therefore, in our case the newly constituted 'Forensic Services Agency' would need to be assigned specific function, that would, not only create exclusive competence for that agency but exclude any other criminal justice agency from exercising those functions.

The challenges

The changes within and outside the criminal justice and forensic science are increasingly posing challenges of fundamental nature, which call for immediate attention and due deliberation. It is proposed to touch upon, only two such challenges, namely; The too much security challenge, and The over-bearing AI challenge.

(i) *The 'Too Much Security Challenge':*

Before providing an elaborate theoretical rationalization for the English criminal justice for the movement away from punishment and towards 'security' was deliberated by Lucia Zedner in 'Criminal Justice to Security Society'[59] she had presented a paper in an International Conference on Policing and Security, titled as "Too much security?"[60] Lucia Zedner in this paper had begun the debate with this poser : "If security is a good thing, why not have more of it? And if private

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58 Stanford Univ. Press, 1968 at 87-91. Packer considers the statutorily laid down functional boundaries as sacrosanct and the essence of normativity.

59 *Criminal Justice* (Oxford Univ. Press, 2004). Discussed in part V earlier.

60 Lucia Zedner, "Too much security?" 31*Int. Jour. of the Sociology of Law* 155-84 (2003), In the same line of thought Lucia Zedner co-authored a book with Andrew Ashworth on *Preventive Justice* (OUP, 2014).

providers are willing to respond to public demand for more of it, why not let them?"[61] She goes on to examine the issue : Is security an unqualified good? In the light of six paradoxes, namely : security pursues risk reduction but presume the persistence of crime; that the expansion of security has enlarged not diminished penal state; that security promises reassurance but in fact increases anxiety; that security is posited as universal good but presumes social exclusion; that security promises freedom but erodes civil liberties; and finally that security is posited as public good but its pursuit is inimical to the good society".[62] The lessons we need to take from Lucia Zedner's view on security are that like the other means of crime control 'security' also requires to be tested in the light of special justifications, that require subjection to the rule of law.

(ii) *The overbearing AI challenge:*

The society needs to be alive to the virtues of the AI and try to gain maximum benefits from it, for a crime free and just society. But AI in the hands of individuals, groups, corporates and Nations can be used to perpetuate unfreedoms and injustices on the Nations, groups and individuals equally. Therefore, the world society seems to be handling the AI revolution by (i) Harnessing the enormous capabilities of AI to the services of mankind, and (ii) Creating checks and balances on the detrimental use of AI by the private and public institutions. The United Nations System has started its work on strategic approach and road map for supporting capacity development for AI through the UNESCO Declaration (2023) that underscore : Respect, protect and promote human rights and fundamental freedoms and human dignity; ecological sustainability; diversity and inclusiveness. All the above principles need to be kept in mind in designing and developing AI capabilities by the Nation States and individuals, in times of peace, as well as war.[63] Similarly, after over five years debates relating to the regulation of AI the European Parliament has agreed for the enactment of a AI law with a view to "The AI Act has nudged the future of AI in a human-centric direction, where humans are in control of the technology and where it helps us to leverage new discoveries, economic growth, societal progress and unlock human potential". Equally important is the way the AI Act lays prohibition on AI thus : "Some AI uses are banned because they're deemed to pose an unacceptable risk, like social scoring systems that govern how people behave, some types of predictive policing

61 "Too much security?" *id.* at 156

62 *Id.* at 157-58.

63 Upendra Baxi "Reshaped by AI", *Indian Express* June 5, 2024.

and emotion recognition systems in schools and workplaces. Other banned uses include police scanning faces in public using AI-powered remote "biometric identification" systems".[64] We need to focus on article 5 of the AI Act that relate to the categories of AI that constitute a potential for harm. The law either explicitly prohibits it or highly regulates it to a limit of least harm to the individual. Following the aforesaid twin courses of encountering the menacing side of the AI would be the apposite line of dealing with the AI challenge.

64 AP News Agency, "European Lawmakers give final approval to worlds first AI law" *Indian Express* Mar. 14, 2024; Also See, Maneka Guruswamy, "A penal code for AI", *Indian Express* Mar. 16, 2024.