

**SCOPE OF SCIENTIFIC INVESTIGATION IN
ADMINISTRATION OF CRIMINAL JUSTICE
SYSTEM**

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DOCTOR OF PHILOSOPHY

BY

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2021

DECLARATION

I do hereby declare that the thesis entitled '**Scope of scientific investigation in administration of criminal justice system**' for the award of Doctor of Philosophy is the record of the original work carried out by me under the guidance and supervision of Dr. K. P. Kylasanatha Pillay. This work has not previously been submitted either in whole or in part for any other Degree, Diploma, or Associate ship or any other title or recognition from any University or Institution.

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CERTIFICATE

This is to certify that the thesis entitled '**Scope of scientific investigation in administration of criminal justice system**' submitted by A. A. Kadeejabi for the award of the degree of Doctor of Philosophy is to the best of my knowledge, a bonafide research work carried out by her, as a part time research scholar, National University of Advanced Legal Studies (NUALS) Kochi, under my guidance and supervision. This work has not previously been submitted either in whole or in part for any other Degree, Diploma, or Associate ship or any other title or recognition from any University or Institution.

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This is to certify that the thesis entitled '**Scope of scientific investigation in administration of criminal justice system**' has been presented in the pre-submission seminar held at The National University of Advanced Legal Studies, Kochi on 26th August, 2020.

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PREFACE

Crime in one form or other has existed since the beginning of human race. In the earlier days, the modus operandi of criminals was simple and so was the criminal justice system. In the beginning of organized human society, a culprit was punished in public view, so as to make an example out of him. This would send out a message to other members of the community, to deter from crime. As society evolved into a much more complicated, multi layered phenomenon, the changes reflected everywhere. With evolved modus operandi and complicated motives, criminals are able to out run the criminal justice system. An effective criminal justice system is a must in-order to have a peaceful and safe society. Without a system that keeps the criminals in check, society could fall into chaos. Criminal justice administration focuses heavily on the police, prosecution and courts which are engaged vital task of investigation, prosecution and punishing criminals in society. Today criminals are relying on latest technological and scientific advancement to commit crime and avoid detection. For the criminal justice system to deal with this situation, modus operandi of investigation and dealing with crime will have to keep up with the modus operandi of criminals.

This study focus on how far scientific investigation will be effective for the smooth functioning of criminal justice administration.

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LIST OF ABBREVIATIONS

&	and
AC	Appeal Cases
AIR	All India Reporter
ALJ	Allahabad Law Journal
All ER	All England Law Reports
ALR	Australian Law Reports
ALR	Australian Law Review
ART	Article
AWR	Allahabad Weekly Reporter
C.P	Common Plea
CA	Court of Appeal
CAL.L.REV.	California Law Review
CAMB. L. J.	Cambridge Law Journal
CAN.L.REV.	Canterbury Law Review.
Cir	Circuit
CLR	Commonwealth Law Reports
Cr P C	Code of Criminal Procedure
COLUM.L.REV.	Columbia Law Review
Corp.	Corporation
C.R.P	Civil Revision Petition
CFSL	Central Forensic Science Laboratory
Cri L J	Criminal Law Journal
DCR	District Court Report
DEL.L.REV.	Delhi Law Review
DLT	Delhi Law Times
DNA	Deoxyribonucleic Acid
ECHR	European Convention On Human Rights
Ed.	Edition
EDS	Editors

EHRR	European Human Rights Reports
Eng. Rep	English Reports
ER	English Reports
EWCA	England and Wales Court of Appeal
EWCA.Civ.	England and Wales Court of Appeal Civil
FLR	Federal Law Reports
FDI	Federal Bureau of Investigation
FSS	Forensic Science Service
GDPR`	General Data Protection Regulation
Guj	Gujarat
H.C	High Court
HARV.L.REV	Harvard Law Review
HL	House of Lords
HCA	High Court (Australia)
IBR	Indian Bar Review
ICCPR	International Covenant on Civil and Political Right
ICESR	International Covenant on Economic Social and Cultural Right
IPC	Indian Penal Code
ILI	Indian Law Institute
ILR	Indian Law Reports
Inc	Incorporation
J	Judge
JOS	Journal of Social Science
JT	Judgement Today
JILI	Journal of Indian Law Institute
ILI	Indian Law Institute
K.B	Kings Bench
KLJ	Kerala Law Journal

KLT	Kerala Law Times
L.Ed	Lawyers' Edition
L.Q.REV.	Law Quarterly Review
Mah.L.J	Maharashtra Law Journal
MOD.L.REV.	Modern Law Review
N.C	National Commission
NSA	National Security Agency
NHRC	National Human Rights Commission
No	Number
NUALSLJ	Nuals Law Journal
NSWLR	New South Wales Law Reports
N.W.2d	North Western Reporter second series
N.W.P.H.C.Rep	North-West Provinces High Court Reports
N.Y.S.2d	New York Supplement Second series
N.Y.Ct.C.P.	New York Court Civil Practice
N.Y.U.J	New York University Journal
N.Y.U.L.REV.	New York University Review
NY.L.REV.	New York Law Review
NZLR	New Zealand Law Reports
P	Page
Para	Paragraph
PACE	Police and Criminal Evidence
PC	Privy Council
PSE	Psychological Stress Evaluator
QBD	Queens Bench Division
SC	Supreme Court
SCC	Supreme Court Cases
SCR	Supreme Court Review
SHRC	State Human Rights Commission
SUPP	Supplement

TLR	Times Law Reports
TWGDAM	Technical Working Group on DNA Analysis Method
UN	United Nations
UDHR	Universal Declaration of Human Rights
U.S	United States
UCLA L. REV.	University of California Law Review
UKAS	United Kingdom Accreditation Service
UKSC	United Kingdom Supreme Court
UNESCO	United Nations Educational Scientific and Cultural Organisation
v.	Versus.
Vol	Volume
WCR	Wales Court Reports
WEST.AUSTR.L.REV.	Western Australian Law Review
WLR	Weekly Law Reporter
W.P.(C)	Writ Petition Civil
W.P(CrI.)	Writ Petition Criminal
W.P.(C)	Writ Petition Civil
YALE.L.J.	Yale Law Journal

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CHAPTER I

INTRODUCTION

“Today we see enormous changes being brought about by Science. The whole context of life is changing. As a matter of fact, looking back at least half century with which I have been more or less connected and some of you also see that enormous changes have been brought about chiefly by Science and Technology. This pace of change is growing and I have no doubt that another fifty years or even twenty-five years hence, you will see even greater changes not merely in space research, but something affecting human life. In order to participate in this movement, you have to build yourself up in the Science and Technology”

- **Jawaharlal Nehru**

1.1. INTRODUCTION

Crime has been a part of human society from the beginning. Call it misbehavior, misdemeanor, or social deviance, wrongs qualified to be crimes keep company with man as a born enemy or a born friend. The proclivities, propensities and the mental make-up make humans vulnerable to the commission of crimes. The physiology and psychology of man (woman also) make his personality inscrutable. As Shakespeare observed “What a piece of work is man, how noble in reason, how infinite in faculties, in form and moving how express and admirable, in action how like an angel, in apprehension how like a God! The beauty of the world, the paragon of animals

— and yet, to me, what is this quintessence of dust? Man delights not me — nor woman neither”¹.

Human mind is an enigma and the mind masterminds one’s behaviour. Wrongs called crimes are born in the mind and action is a sequel to the intention crystallized. Only an analysis of the mind can unravel the mystery surrounding a crime and that takes one out of the realm of the mind to relate to the attending circumstances in the search for truth. Here science comes in and only science is capable of meeting the requirements of an investigation. Investigation is a comprehensive term accommodating in its fold a bundle of activities aimed at reaching the truth, collecting the best evidence to resolve the crime committed by the wrongdoer. There is a perspective traditionally attached to the investigation process within the four walls of the prescribed laws. But the system has outgrown the traditional perceptions. New ideas have evolved, new tools are devised, and new procedures have been adopted through inventions and innovations. This change of scenario in investigation is today dominated by science and technology. This has given rise to the need of a system that can prevent crimes from happening and can also punish those who commit crimes. In the earlier days, the modus operandi of a criminal was simple but crude and so was the criminal justice system. In the beginning of organized human society, a culprit was punished in public view, so as to make an example of him. This would send a message to other members of the community, to deter from crime. As society evolved into a much more

¹[‘Hamlet’-Act2, Scene 2.William Shakespeare].

complicated, multi layered phenomenon, the changes were reflected everywhere. Lifestyle, culture, social interaction, technology, and every other aspect of human society has witnessed and evolved due to technology. Criminals have also been quick in adapting to technology, using it for their own benefit, to commit crimes and to avoid detection. With evolved modus operandi and complicated motives, criminals are able to outrun the criminal justice system.

The criminals and the criminal justice system have been interacting with each other for much longer than we can recall, one trying to outdo the other. An effective criminal justice system is a necessity in order to have a peaceful and safe society. Without a system that keeps the criminals in check, society could fall into chaos. The state is the chief obligant in the administration of criminal justice with necessary co-obligants like police, prosecution and courts which are engaged in the vital task of investigation, prosecution and punishing criminals in the society. Modern day criminals are relying on the latest technological and scientific advancements to commit crime and avoid being apprehended. For the criminal justice system to be effective in dealing with this situation, investigation and dealing with crime will have to keep up with the modus operandi of the criminals. It is common knowledge that even though law is essentially a structure of rules and regulations, it is often flexible enough to accommodate the needs and demands of a just society. In the past few years laws across the globe have evolved in order to recognize the new methods of commission of crime. However to truly combat modern crimes and criminals,

the changes have to be reflected not only in laws, but in the complete criminal justice system starting from investigation of crime till the decision of the Court. In this context, the contribution of science in the procedure of investigation cannot be underestimated. The process of investigation is of utmost importance in this regard. No crime can be solved without a proper investigation. It has been seen in a plethora of cases that delayed or haphazard investigation leads to cases remaining unsolved and also results in acquittal. The only way to tackle this problem is to bring about major changes in the criminal investigation process, especially in India, where the conviction rate is lower as compared to many other developed nations. In countries with lower crime rate and higher conviction rate, it is seen that newer methods of investigation have been adapted, and the same have been given validity with changes in legislation and permission by courts.

Countries like USA have always embraced new scientific developments and the same reflects in their adapting new, scientific methods to apprehend criminals and to bring them to justice. The adaptation of DNA as a reliable evidence, even when it was a relatively new technique shows the lack of reluctance on the part of their criminal justice system to utilize the benefits of scientific progress. Even the term “serial killer” was coined following a study into the behaviour of violent criminals by the Behavioural Science Unit of FBI. This proved to be a deep dive into the psychology of criminals with violent tendencies and these insights helped them to solve many ongoing cases. Such adaptation of new methods in the field has helped USA achieve high conviction

rates. In India it is the outdated methods of investigation that hinder the establishment of an effective criminal justice system. Even today our criminal investigations rely on the traditional sources of proof like eyewitness account, approvers, and confession, the effectiveness of which has long become defunct. It is the obligation of the law enforcement officers to detect crime, track offenders and to collect information that leads to the conviction of those who are guilty. India has enough legislation on various crimes but they are not at par with today's times. The laws that are prevalent are centuries old and to keep pace with the changing needs of the society, every other day a new law is passed by the Parliament. But these laws are passed often after the commission of new heinous crimes as India does not work in advance. The main allegation against the police officers is that they resort to the use of third degree interrogation in order to bring out truth by hook or by crook, and this is considered as inhuman, illegal and barbarous.

With the emergence of internet, crime has also gone global, just like everything else in the world. Now, criminals are not limited to their immediate physical surroundings in committing crimes. Today, a person can be defrauded and blackmailed by another person sitting in a different corner of the world. This has led to the emergence of crimes that are carried out on a global level. Cybercrimes like scams, hacking and data theft have all become common in this internet age. Cyber-crime can be fought only with the help of computers, skilled engineers, data analysts etc. This access to technology has also helped international terrorists in various aspects, from recruitment to carrying out

operations. As these operations are carried out remotely, it becomes difficult for the countries to track the crimes, due to the various international, legal, diplomatic and political reasons. The eye witness method of investigation has many issues as they may be inaccurate and can be easily manipulated. Some witnesses refuse to appear before the court in spite of knowing the truth or witnessing the event because of fear of becoming preys to the criminals or threats which many a time are fatal. In some cases, crimes are committed at such places that it is impossible to get any witness. This is the time when the application of science and technology becomes a necessity in the methods of investigation. Criminal investigation determines the quality of the criminal justice system. With the introduction of mobile phones, computers and internet services, crimes are increasing to a great extent but the complicated jurisdictional issues, climatic infrastructure and functional shortcomings create special difficulties in crime detection. Intelligent criminals have been quick to exploit scientific technologies for committing crimes but we are still relying on the age old ways of interrogation to detect crimes.

Scientific investigation of crime with the aid of forensic science has been accepted all over the world. Successful criminal investigation can be done with the help of forensic science. In India the Code of Criminal Procedure, 1973 is the main legislation dealing with investigation. As per the code of Criminal procedure, investigation means all procedures for the collection of evidence done by the police officer or any person authorized by the magistrate. Hence no clear approach is practiced by the police officers in crime scene

investigation. Many times investigation agencies collect evidence the scientific way but the same ends up as a futile exercise by them when the evidence is declared inadmissible. A crime scene is a treasure of information because many physical clues are available from the crime scene. But only a person with a scientific knowledge for the collection of evidences will be able to make use of the potential evidence that can be gathered from the crime scene. An investigating officer who is observant and vigilant can extract a lot of vital information from the crime scene that can help in building a strong case in the court room. The involvement of forensic science in that investigation will make the investigation stronger. In advanced countries investigation is done by crime scene investigators who are specialized in crime scene investigation. The principle of scientific investigation is that, a witness may lie, but the circumstances may not. The most critical phase in the investigation of the crime scene is the gathering of the proofs because even the tiniest trace will be of relevance. If evidences are not properly observed the valuable information will be lost, and if not properly collected the evidentiary clues will be contaminated. Each type of forensic evidence requires a particular method for the collection, handling, packing and forwarding of the physical evidence for forensic examination.

The job of investigation is quite tough and challenging in the Indian conditions. India follows the adversarial justice system which is largely based on the philosophy that, 'it is better 100 guilty Persons should escape than that one innocent person should suffer' and hence the cases start with the

presumption of the innocence of the accused person. It is the duty of the investigating officer to place all relevant materials before the prosecution. The important problem faced by Criminal justice Administration in India is the low rate of conviction, especially in heinous cases. One of the reasons for the increasing rate of acquittal is that either the investigating agency fails to collect the requisite evidence or the prosecution fails to link the chain of evidence collected by the investigating agency. In an adversarial system the judge does not possess a positive duty to discover the truth as the investigation is the exclusive domain of the police. Around the world, new technological advances are adding greatly to the process of crime prevention and justice administration. The courts rely heavily on the facts gathered by scientific methods to discover the truth. This is because the conclusions of the scientific approaches used to collect specific evidence are reliable and can be depended on. Many new scientific tools such as DNA, Narco Analysis, Polygraph and Brain Mapping, etc. have evolved greatly and after continuous study. Not only in the criminal justice system, but in civil litigation also the implications of these scientific methods are commonly used. DNA profiling has emerged as a reliable source of scientific evidence because it has the possibility to determine whether the biological clues at the scene of the crime come from the person suspected of crime or not. Thus, it is very useful in the investigation of murder, sexual offences and in paternity disputes. DNA profiling has been widely used in countries like UK and USA, and even a DNA database has been built to increase the application and accuracy of the method over time.

The necessity of introducing scientific methods in investigation can be deduced from the recommendations of the 14th Law Commission Report, 1958. Padmanabhaiah Committee on Police Reform, 2000 focuses on and recommends various changes in the police system in India. The report sheds light on the need for equipping the police with 'investigation kits' and requires that every sub-division should have a mobile forensic science laboratory. Malimath Committee on Reforms of Criminal Justice Administration 2003 also points out that one of the reasons for the low rate of conviction is lack of scientific technologies in investigation. Draft National Policy on criminal justice system prepared by Professor N.R. Madhava Menon, 2007 has recommended that evidence collected through scientific methods must be admissible in courts as substantive evidence and not just as opinion evidence. The 239th Report of Law Commission of India, 2012 on Expeditious Investigation and Trial of Criminal cases against Influential Public Personalities, observed that the police are quite often handicapped in undertaking effective investigation, for want of modern gadgets such as cameras, video equipments etc. Recommendations were made to review the entire classification and also the powers of the police and the CBI in investigation, and the powers of the Intelligence Bureau in cyber surveillance and the National Crime Records Bureau in cyber technology. It warranted the enhancement of the cyber surveillance capacity of these investigative agencies. Despite judicial guidelines and committee reports regarding the necessity of scientific investigations there is no law mandating that investigation shall be

conducted by scientific experts. Thus, the DNA evidence has received great acceptance in the western countries due to its potential in criminal investigations. In India, we are still lagging behind, both in academic and practical fields, because our courts are not able to appreciate the scientific evidence in the absence of specific legislation. Code of Criminal Procedure, 1973 was amended in 2005 in which medical examination includes DNA also but in the absence of specific legislation, its conditionality challenges.

With the advancement of civilization and science, several sophisticated methods of detection like polygraph, and brain mapping which are non-invasive techniques have been introduced. However, later on, another scientific technique ‘narco-analysis’ has been developed as a tool by the investigators. Though this technique has become popular in law enforcement and judicial circles it is one of the most controversial techniques for eliciting the truth from an accused in crime investigation. This technique has generated a lot of controversy worldwide because of its adverse effect on the health of the subject as well as it being another form of torture and infringement of the right to privacy, right against self-incrimination and right to the health of a person. The main controversy that governs the use of this test is its seeming violation of the fundamental rights of an individual guaranteed by the Constitution. Apart from the violation of the right against self-incrimination, this test also raises issues regarding the ‘right to human dignity’ and ‘inviolability’. On the other hand, the criminal justice system is criticized for the slow progress of investigation and trial. However, in India, the judiciary has considerably settled the scientific

method of these interrogations in criminal investigation after the decision of the Hon'ble Supreme Court in *Smt. Selvi and Others v State of Karnataka*. Even though the Apex court vehemently criticised the application of these tests, it also provided some safeguards for conducting this test. Even after this decision in many cases like terrorism and financial fraud this test is permitted with the consent of the accused.

This thesis analyses the changes needed in the criminal investigation process in India and the loopholes of conventional methods of investigation. The study also examines the need for science in the detection of crime. The important scientific tools of investigation like DNA, Polygraph, Brain Mapping and Narco Analysis, along with their constitutionality and evidentiary value are also discussed here. Criminal justice administration in India faces a high rate of crime and a very low rate of conviction. Even after a lapse of 73 years of Independence, due to the subsisting practice of the age old colonial system of criminal justice, there are some inherent defects in the contemporary Criminal Justice System in India. This study looks to provide solutions and various advantages that can be availed by adapting newer and modern techniques. Investigation should be carried out convincingly but the traditional methods lack acceptability and adaptability to the emerging situations. Justice should not only be done, but it should manifestly and undoubtedly be seen to be done. This oracular utterance of Lord Justice Hewart is equally relevant in the matter of investigation². Investigation must be transparent; findings must be rationally

² R v Sussex Justices, ex parte Mc Carthy, (1924)1 KB 256.

verified; it should add value to the criminal justice administration. This becomes possible only by changing with the times in the methods, modes, and applications. In this respect science is the best ‘friend, philosopher and guide’ to earn credibility and achieve positive results. Scientific thinking creates a predictable and objective ecosystem for justice administration. Tools and methods developed on scientific and technological principles have credited investigation with universal utility. With rapid strides in technology the investigation of offences has undergone tremendous transformation. This thesis examines as a research problem the questions emanating from the scenario. The hypothesis is that science and technology change the contours of investigation, and the research problem formulated answers this in the affirmative.

1.2. SCOPE OF THE STUDY

Due to the technological advancement the methods used for commission of crime had undergone a radical change. For the criminal justice system to be effective in dealing with this situation, investigation and dealing with crime will have to keep up with the modus operandi of the criminals. The only way to tackle this problem is to bring about major changes in the criminal investigation process, Scientific investigation of crime with the aid of forensic science has been accepted all over the world. But in India there is no enactment or legislation to deal with the scientific methods of investigation.

Among the various tools of investigation used by the investigating agency D.N.A. is the most powerful tool. Code of Criminal Procedure, 1973

was amended in 2005 in which medical examination includes DNA test also but in the absence of specific legislation it is subject to criticism with respect to constitutionality and its evidentiary value. In this research work a detailed study has been made to analyse decisions of Supreme Court, various High Courts, and countries such as USA, and UK in DNA matters. The proposed DNA bill in India is also analysed.

Interrogation of suspect plays a vital role in investigation. To extract hidden information from human mind for the purpose of investigation there are scientific method popularly known as Deception Detective like narco analysis, polygraph or brain mapping are used by the investigating agency in exceptional situations. In India, the judiciary has considerably settled the scientific method of these interrogations after the decision of the Hon'ble Supreme Court in *Smt. Selvi and Others v State of Karnataka*. Even after this decision in many cases like terrorism and financial fraud this test is permitted with the consent of the accused. But the mere guidelines without legislative support will not be adequate to meet the requirements of the day.

In this research work an attempt has been made to analyze the challenges faced in the Criminal Investigation in India and to bring a specific legislation with respect to scientific technologies in order to keep pace with the crime.

1.3. SIGNIFICANCE OF THE STUDY

This study is helpful to find out how far scientific investigation will be effective to solve the problems in the investigation faced by the criminal justice administration. At present we have no legislation covering scientific investigations. Though we have judicial pronouncements about the need of scientific investigation, there is no binding methodology for investigating officers, law enforcement officers or judicial officers. The advancement of scientific technology led the criminals to change their modus operandi in committing crime, which necessitated the investigating agencies to apply scientific technologies in investigation but the absence of specific legislation makes its admissibility and evidentiary value ambiguous. The research work is of immense use to law students, lawyers, investigating officers and judges. It is an attempt to study how the investigation to be fruitful in terms of administration of justice with the use of scientific techniques for collection of evidence and also for the introspection of truth.

1.4. REASEARCH PROBLEM

The advancement of Science and Technology has changed the modus operandi of committing crimes. This is evident from the Latest Report of National Crime Record Bureau. Hence to combat such types of crimes, the ordinary and obsolete methods of crime detection is not tenable. Hence the

sophisticated methods of crime commission have led the criminal judicial system to grope in a grey area, thereby reducing conviction rate. This is one of the most important problems faced by criminal justice system which has eventually led to the increased percentage of acquittals in criminal cases. Thus the relevance of scientific investigation is elated.

1.5. RESEARCH METHODOLOGY

The present study is purely doctrinal, based on the existing legislations, National as well as the International, the judicial pronouncements and various Committee reports. Various legal and scientific literatures have been collected from textbooks, journals, report and internet sites, etc.

1.6. RESEARCH QUESTION

- Whether the investigation techniques are keeping in pace with the advanced technological modus operandi of criminals?
- Whether scientific investigation infringes Protection against self-incrimination under Article 20 (3) of the Indian Constitution and the right of Privacy under Article 21 of the Indian Constitution?
- Whether scientific investigation is antithesis to section 53 of the Code of Criminal Procedure?

1.7. HYPOTHESIS

- Present day criminal investigations are not adequate enough to prove the crime. Investigative techniques are not keeping pace with the advanced technological modus operandi of criminals.
- Scientific techniques used in investigation like DNA, Narco Analysis , poly graph or brain mapping are not violative of Article 20(3) and 21 of Indian Constitution.
- Scientific techniques are not ante thesis to medical examination under section 53 of Code of criminal Procedure

1.8. OBJECTIVES OF THE STUDY

- To find out the shortcomings of conventional methods of crime investigation.
- To check the constitutionality of scientific investigation.
- To analyse the scope of scientific investigation in the light of Section 53 of the code of criminal procedure, 1973.
- To find out the role of each wing of criminal justice system i.e. police, prosecutor and judges, in order make efficient administration.
- To find out whether the present criminal investigation is adequate enough to detect crime.

- To analyse what extend defective investigation lead to acquittal of accused person
- To point out the loopholes in the conventional method of investigation
- To find out the ways in which scientific investigation contribute to the expeditious detection of crime.
- To analyse whether scientific developments in investigation has dwindled the crime rate
- To study the how judiciary has contributed to scientific detection of crime using techniques like DNA fingerprinting, Narco analysis, polygraph and brain Mapping.
- To find out ways and means to reform the system to ensure criminal justice is not denied to the innocent.

1.9 CHAPTERIZATION

- Chapter 1 – Introduction: - It sets out broad frame work of the thesis. It provides general introduction. It discusses the statement of the problem, objective and hypothesis of the research work.
- Chapter 2 - Criminal justice system – Role of each organ: - This chapter deals with the structure and role of three important agencies of criminal justice system (Police, prosecution and judiciary) and the problems faced in criminal justice administration. It also discusses

role of scientific technologies in order to make the criminal justice system more effective.

- Chapter 3 - Criminal investigation in India – An overview: - This chapter provides an overview of Criminal Investigation in India in conventional crimes. In this chapter an attempt has been made to analyse how far lack of scientific knowledge leads to inefficient investigation, the problems of conventional investigative methods and what are the desirable changes in the criminal investigation.
- Chapter 4 - Scientific investigation: - Every contact leaves a trace. Due to the impact of science and technology the modus operandi of modern criminals have changed. Criminals are now very sophisticated highly technical without leaving any traces in the Crime scene. Hence science and technology plays vital role in Crime Scene investigation. This chapter deals with importance of forensic science in Crime Scene investigation, the procedure to be followed in crime scene investigation, the role forensic laboratories in decision making process and the problems faced by the laboratories. This chapter also provides some suggestions which are necessary to make criminal investigation more effective.
- Chapter 5 - Scientific techniques in core investigation with special reference to D.N.A Profiling: - DNA is the most powerful tool of scientific investigation today. It has the possibility to determine whether the trace evidences deposits at the scene of the crime comes

from the person suspected of crime or not. Though it provides the most evidentiary clue to the investigating agencies, in the absence of a specific legislation its Constitutionality and evidentiary values is a serious issue before the judiciary. The DNA Technology (Use and Application) Regulation Bill, 2019 is pending before the Parliament; it is also subject to severe criticism due to privacy concerns. The defects and loopholes and the suggestions for the bill is also discussed in this chapter.

- Chapter 6 - Emerging trends in criminal investigation – Issues and Challenges: - In criminal investigation interrogation of suspect plays a vital role in extracting truth, Due to the scientific nature of crime committed by criminals demand for supplemental methods for detecting deception has increased. This chapter focuses on the application of modern methods of interrogation Narco analysis, polygraph and brain mapping. The main threat to these interrogative tools is constitutionality and admissibility of this scientific tool. This chapter analyses journey of judiciary to clarify its constitutionality in the light of decisions of Supreme Court The changes needed in Criminal Procedure Code with respect to this Scientific tool are also discussed in this chapter.
- Chapter 7 – Legality of scientific investigation in common law countries with special reference to USA & UK: - In today's world it becomes inevitable to use modern technology as means for

investigation and interrogation of truth. Many countries have been able to strike a balance between use of these methods for evidence, and the right to privacy of its people. Almost all legal system in the world has developed legislations in tune with science and technology. This chapter is an attempt to analyse scientific evidences and its admissibility in common law jurisdiction with special emphasis on UK and USA.

- Chapter 8 - Conclusion and suggestions: - This chapter summarizes the present Study. Certain suggestions are also made for the improvement of the existing criminal justice system.

1.10 LIMITATIONS OF STUDY

The limitation of the study is that the researcher has collected reference material from secondary sources through textbooks, articles from the newspapers, and journals, and the reference from the judicial decisions and web sources but not beyond this limitation.

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CHAPTER II

CRIMINAL JUSTICE SYSTEM – ROLE OF EACH ORGAN

“Justice forms the cornerstone of each nation’s law”.
- Alexis de Tocqueville

2.1. INTRODUCTION

Crime is a social phenomenon and is found in all societies. In primitive societies victim himself punished the wrongdoer through retaliation and revenge. But the modern society has defined certain acts as crime and has provided punishment for commission of such wrongs through legislations. These functions are carried out by State through various Organs of administration of justice. It is a device adopted by the civilized community by replacing the primitive practice of wreaking private vengeance and violent self-help. It is the duty of state to guarantee and secure a peaceful society. Criminal justice system determines what will constitute crime and then defines, tries, convicts and punishes those who have violated criminal law³. It is a social institution which control criminal activities, and there by protect persons from criminal activities. Ultimate aim of criminal law is to minimize incidence of

³. PANDIT KAMALAKAR, HUMAN RIGHT AND CRIMINAL JUSTICE 35 (Asia Law House 2010).

crime by effective administration of justice. Success of a society depends on how efficiently the criminal law is administered in a particular society⁴. Most of the countries in the world have adopted criminal policy to safeguard the interest of their people and protect the society from wrongdoers. Hence criminal justice administration shows the level of civilization in such countries. It is the fundamental obligation of the state to make adequate laws and organize an efficient legal and judicial system, worthy of respect, embodying the cherished values of society⁵. The Kautilya reflects the fact that an effective mechanism for the administration of criminal justice is essential to ensure peace and security⁶.

Criminal law, criminal procedure, the institution that enforces the said law and the personnel involved in administering the system form criminal Justice system⁷. It is viewed as the primary obligation of the state. Rule of Law, democracy development and human rights are dependent on the degree of success that the governments are able to achieve on the criminal justice front⁸. Hence the purpose of the Criminal Justice System is to determine truth and deliver justice to all by convicting and punishing the guilty and protecting the

⁴ S. Lakshmi Sai, Rama Krishna & R. Jaya Bharathi, *Criminal Justice Administration*, XL IBR, 4 (2015)

⁵ H. R. BHARDWAJ, CRIME CRIMINAL JUSTICE AND HUMAN RIGHTS 3 (Konark Publishers Pvt Ltd 2013).

⁶ DR. JOHN P C, POLICING IN THE ACCUSATORIAL SYSTEM 17 (R. Cambray & Co. Private Ltd 2017).

⁷ Dr. N R Madhava Menon, *Report of The Committee on Draft National Policy On Criminal Justice*, Government of India, Ministry of Home Affairs, 2007 p.5 at Para 2.1.

⁸ Dr. N R Madhava Menon, *Report of The Committee on Draft National Policy On Criminal Justice*, Government of India, Ministry of Home Affairs, 2007 p.5 at Para 2.1.

innocent. To ascertain truth certain rules are followed, which are known as the basic principles of criminal justice system⁹.

The criminal justice system of the world can be prominently categorized into two, adversarial and inquisitorial. In an adversarial country like India, the roles of judges are confined, as they rarely participate in the crime investigation. But their decisions rely upon the evidences brought before them through investigation. In this system burden of preparing the case for court falls on the parties themselves. The judge act as an umpire, listening to the evidence produced by the parties, to ensure that, that proceedings are conducted with procedural propriety and announcing a decision at the conclusion of the case¹⁰. He is a neutral observer tries to find out and ascertain whether the prosecution has been able to prove its case beyond reasonable doubt¹¹. Evidence becomes a very important part of adjudication system in an adversarial system, where prosecution has to prove the guilt of person accused of an offence. Where as in an inquisitorial system Judge de instruction conducts the preliminary inquiry with a view to find out the truth. In this system there is judicial supervision from the beginning of investigation to disposal of the case. Judges participate in the preliminary inquiry, investigation and preparation of the defence but he has no authority conduct trial of the case. As seen in the common law Countries there is no strict application of presumption of innocence in French

⁹. K. D. GAUR, CRIMINAL LAW CRIMINOLOGY AND ADMINISTRATION OF CRIMINAL JUSTICE 6 (Universal Law Publishing Lexis Nexis 2015).

¹⁰. ANDREW SANDERS RICHARD YOUNG AND MANDY BURTON CRIMINAL JUSTICE 14 (Oxford University Press 2010).

¹¹. K.D. GAUR, CRIMINAL LAW CRIMINOLOGY AND ADMINISTRATION OF CRIMINAL JUSTICE 6 (Universal Law Publishing Lexis Nexis 2015).

Law. Inquisitorial countries invoke the legal maxim “in *dubio pro reo* “which require trier of facts to acquit in cases of doubt.¹²As the judge de instruction has a prominent role in inquisitorial system burden of proof is reduced to the French prosecutor.

2.2. COMPONENTS OF CRIMINAL JUSTICE SYSTEM

Administration of criminal justice rests on police, prosecution, and courts which are engaged in the crucial role of investigation, prosecution and decision making. The inefficiency of any one of these agencies will greatly influence the other and would reflect on the entire criminal justice system. Law is meaningless if it is not properly administered by each organ. A weak Criminal Justice System in fact promotes criminality and promotes several other anti-social activities. This certainly leads to the erosion of the people’s faith in the justice delivery mechanism.

The role of each components of Criminal Justice System is given below.

2.2.1 POLICE

Police is an official organization that is responsible for protecting people and property making people obey the law, finding out and solving the crime and catching the people who have committed the crime.¹³ It is the organized

¹² DR. JOHN P C, POLICING IN THE ACCUSATORIAL SYSTEM 35 (R. Cambray & Co. Private Ltd 2017). The principle requires the existence of fixed amount of evidence so that the judge can decide the case. It is about the factual basis for the guilt of defendant and it applies to total defence.

¹³ CAMBRIDGE DICTIONARY, <https://dictionary.cambridge.org/dictionary/english/police> (last viewed on Jan. 14, 2021)

force in a state meant to afford protection to individuals in their social life¹⁴. In order to achieve the ideals of Constitution an efficient system of law enforcement is an essential requirement. Assistance of police is necessary for enjoyment of fundamental right. It is an indispensable mechanism in democratic institution and also for effective enforcement of criminal justice system. In most states in the modern world Police have become a ubiquitous element¹⁵. It plays an important role in maintenance of law and order¹⁶ and prevention of crime. In *Superintendent of Central Prisons, Fatehgarh v. Ram Manohar Lohia*,¹⁷ Hon'ble Supreme Court held that maintenance of law signifies a state of tranquillity in the political society as a result of internal regulations enforced by the government, which they have established. Police are exposed first hand to the agony of the victim, danger of street, the violence of law breakers¹⁸.

Police is the axis on which the rule of law rests and rotates. Police have significant role in criminal justice system for prevention of crime and maintenance of law and order. Police force has been in existence in India in one form or another. The origin of police system can be traced back to epics,

¹⁴. DR. JOHN P C, POLICING IN THE ACCUSATORIAL SYSTEM 4 (R. Cambray & Co. Private Ltd 2017).

¹⁵. Robert B. Seidman, *Guarding the State The Police Response to crisis Politics in Europe*, 5 BJLS 69, (1978).

¹⁶. Basudev v. Rex, 1949 All 53. It means the absence of violence and an orderly state of affairs in which members of the community can peacefully pursue their normal vocation of life.

¹⁷. Superintendent of Central Prisons, Fatehgarh v. Ram Manohar Lohia, AIR1960 SC633.

¹⁸. FRANK W. MILLER, ROBERT O. DAWSON, GEORGE E. DIX, RAYMOND .I. PARNAS, CRIMINAL JUSTICE ADMINISTRATION 2 (The Foundation Press 1986).

mainly Ramayana and Mahabharata. The great Indian law giver Manu also emphasized the need of police force for maintenance of law and order¹⁹.

The ancient history of India reveals that there were well organized police forces during the reign of ancient rulers²⁰. After the mutiny of 1857, Indian Police Act of 1861 was enacted to recognize the police and to make it a more effective instrument for the prevention and detection of crime²¹. But now this role has undergone radical change.

In a democratic society every organ of the state ought to be accountable to the people and this applies more appropriately to the police than others as the police represent the law and order of the society²². They are the central agency of criminal justice system because decisions of the legislature and the courts would remain merely in paper if there were no effective police force to enforce them.

Duties of Police are defined under section 23 of the Police Act, 1861²³. The ideal Role of police in a community has been best described in the following words; “As a law enforcement officer, my fundamental duty is to

¹⁹. PROF. N V PARANJPE, CRIMINOLOGY AND PENOLOGY WITH VICTIMOLOGY 341 (Central Law Publications 2011).

¹⁸. The Mughal rulers in India also had a well-organized police force for maintaining law and order in the society. The history of Indian Police will be incomplete without a reference to far reaching reforms made by Lord Cornwallis in the police administration. He organized a regular police force to maintain law and order and took away the rights of landlord. An elaborate Code of Regulation known as Cornwallis Code of Regulation was framed and published in 1783. He had established police post at different districts and kept policemen under the Indian sub inspectors and superintendent of police as the head of the district.

²¹. See The Police Act, 1861, Preamble, Acts of Parliament, 1861 (India). Preamble of the Act says whereas it is expedient to reorganize the police and to make it a more efficient instrument for the prevention and detection of crim

²². PROF. R. DEB IPS, POLICE AND LAW ENFORCEMENT 49 (S C Sarkar & sons Private Ltd 1988).

²³. See The Police Act, 1861, S.23, Acts of Parliament, 1861 (India).

serve mankind, to safeguard lives and property, to protect the innocent against deception, the weak against oppression and intimidation, and the peaceful against violence and disorder and to respect constitutional rights of all men to liberty, equality and justice”²⁴. A Policeman should not only protect, preserve and enforce the law but in his own life and action so conduct himself that he becomes a living embodiment of the Rule of Law²⁵.

The Code of Criminal Procedure, 1973 is the main legislation which dealt with powers and duties of Police²⁶. The Constitution placed the police in the State List of the Seventh Schedule thereby giving the State Legislatures has given the powers to legislate on these subjects²⁷. But Parliament has power to intervene in State police administration. Though the police is a State subject its organization and working are governed by the rules and regulations framed by the central government. The specific international instruments which dealt to guidelines to police officers are United Nations Code for conduct of Law enforcement officials (1979)²⁸, Council of European Guidelines (1985)²⁹,

²⁴. AHMAD SIDDIQUE, CRIMINOLOGY 302 (Eastern Book Company 2005).

²⁵. PROF. R. DEB IPS, POLICE AND LAW ENFORCEMENT 10 (S C Sarkar & sons Private Ltd 1988).

²⁶. DR. K N CHANDRASEKHARAN PILLAI, R V KELKER’S CRIMINAL PROCEDURE 58 (Eastern Book Company 2014).

²⁷. Police (including railway and village police) subject to the provisions of Entry 2-A of List I

²⁸. General Assembly Resolution 34/169, Article 1, 1979 (UN). Law enforcement officials shall at all times fulfill the duty imposed upon them by law, by serving the community and by protecting all persons against illegal acts, consistent with the high degree of responsibility required by their profession.

²⁹. As per Guideline no 8 as far as questioning of victim during police investigation is concerned it should be done in a dignified manner due consideration to victims situations as victim of violent crime.

Guide for Policy makers (1999)³⁰. The Code of conduct for police in India (1985) is the guidelines to police officers in India³¹ in order to perform their duties in accordance with constitutional mandate and statutory instruments.

Model police act was passed by the Central government in 2005³² which emphasized the need to have a professional police service, which would be efficient and effective response to the need of the people and also should be accountable to Rule of law. Seventeen States have amended their existing Police Act in order to comply with the model Police Act³³. The act provides for social responsibilities of police which emphasized that they are governed by Human right norms and impartiality with main focus on protection of weaker sections. The Act also emphasized that in order to ensure responsive and, efficient and Police service professional and dedicated staffs are necessary for crime investigations.

Highlighting the role of Police in providing protection to society, Hon'ble Supreme Court in *Manohar Lal Sharma v. Principal Secretary and others*³⁴ quoted the words of Lord Denning; "Police play an important and

³⁰. See. GSRDC, <https://gsdrc.org/document-library/guide-for-policymakers> (last viewed on Jan. 14, 2021) Guide for Policymakers on the Implementation of the United Nations Declaration of Basic principles for justice for victims of crime and abuse of power.

³¹. GOVERNMENT OF PUDUCHERRY, PUDUCHERRY POLICE, <https://police.py.gov.in/MHA%20-%20Model%20Code%20of%20Conduct%20-%20Indian%20Police>. (last viewed on Jan. 14, 2021)

³². BUREAU OF POLICE RESEARCH & DEVELOPMENT, MINISTRY OF HOME AFFAIRS https://bprd.nic.in/content/411_1_ModelPoliceAct.aspx. (last viewed on Jan. 14, 2021)

³³. As per information available, so far 15 States viz. Assam, Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Kerala, Maharashtra, Meghalaya, Mizoram, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura and Uttarakhand have formulated their State Police Act and 2 States, viz. Gujarat and Karnataka have amended their existing Police Act. Thus, total 17 State Governments have either formulated their State Police Acts or amended the existing one.

³⁴. *Manohar Lal Sharma v. Principal Secretary and others*, 2014 (2) SCC 532.

indispensable role in safeguarding our freedom. Society for its defence needs a well led, well trained and well-disciplined force or police, on whom it can rely: and enough of them in order to prevent crime prior to its occurrence, and in cases where it doesn't happen, to detect it, and bring the accused to justice". Committee on Reforms of Criminal Justice system chaired by Justice V.S. Malimath mentions about the responsibility of police for protecting human rights of individuals and maintenance of law and order ³⁵.

By taking into account the responsibility, accountability and duty of police to the society in *Arun Kumar Bhadoria v. State Of Uttarakhand And Others*³⁶. It was held "The police have always been perceived as an imperative arm of the state, whether it was during ancient times in the kingdoms that ruled India or in the city states of Greece, the police force have played a pivotal role. It is an organization aimed at maintaining the authority of the Crown and not to the service of the people. This agency was used by the British for oppression, subjugation and for protecting British interests and to sustain their empire. In any case, the connection between the police and the public was one of doubt and suspicion.

³⁵. Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2003 p.87 at Para 7.1. "The primary responsibility of Police is to protect life, liberty and property of citizens. It is for the protection of these rights that Criminal Justice System has been constituted assigning important responsibility to the Police. They have various duties to perform, the most important among them being maintenance of law and order and investigation of offences. The police is charged with the responsibility of protecting precious Human Rights of the citizens. Whenever there is an invasion or threat of invasion of one's human rights it is to the police that the citizen rushes for help. Unfortunately the contribution of the police in this behalf is not realized and only aberrations of the police are noticed, highlighted and criticized. The aberrations must be corrected and the police respected for the difficult role they play even at the cost of their lives in the process of protecting the rights of the citizens".

³⁶. *Arun Kumar Bhadoria v. State Of Uttarakhand And Others*, W P (PIL) No. 48 of 2017 in the High court of Uttarakhand.

Emphasizing the significance of Police to society Hon'ble Supreme Court in *Prakash Singh v. Union of India*³⁷ held that the dedication, commitment, and responsibility of police has to be only to the law. The oversight and control has to be such that it guarantees that police serves the people with no respect, at all to the status of any individual while investigating a crime or taking preventive measures. Considering the importance of police in prevention of Crime and protection of society, framers of Code has inserted chapter X and XI to the Code of Criminal Procedure³⁸. Section 30 and 31 of Police Act contain several powers to preserve peace and security³⁹.

Police plays significant role in dispensation of criminal justice. Justice delivery depends on fair investigation conducted by the police. Reflecting upon the wide powers given to Police during investigation and duties of investigating officer while conducting investigation, Hon'ble Supreme Court observed that Investigating Officer is the arm of the law and the foundation stone on which whole edifice of our criminal trial rests⁴⁰. As the purpose of investigation is search for truth, wide powers have been given to Police officers to conduct investigation⁴¹. But it cannot exceed the limit and judiciary can interfere when there is any miscarriage of justice. Judicial reactions to human right violation

³⁷. *Prakash Singh v. Union of India*, (2006) 8 SCC 1, 2006 (4) KLT 482 (SC). See para 12 (This is a historic judgment directing the Central and State Governments towards operational reform and functional autonomy of the police). The case is also referred in *State of Kerala v. Unni*, 2013 (1) KLT 695 (FB); *Alok Kumar Verma v. Union of India*, 2019 (1) KLT OnLine 3005 (SC), AIR 2019 SC (W) 438.

³⁸. The Code of Criminal Procedure, 1973, Ch. XI & S. 129, Acts of Parliament, 1973 (India).

³⁹. The Police Act, 1861, S.30, 31, Acts of Parliament, 1861 (India)

⁴⁰. *V. Raghupathy v. The Deputy Registrar of Co-operative Societies & Others*, W P No. 9066/2005.

⁴¹. The Code of Criminal Procedure, 1973, S. 156, Acts of Parliament, 1973 (India).

by police are expressed in different forms⁴² exclusionary rule in U.S.⁴³, Judges rule in U.K⁴⁴ and arrest rule in India⁴⁵.

Even though police in India suffers many problems such as heavy work load, political interference, pressure from Superior Police officers, but there is no doubt that investigation conducted by police shall be objective, ethical, human and in lawful manner. Due to the advancement of Science and Technology the technical criminals are using most modern methods for commission of crime. Hence the conventional method of investigation is obsolete. For the purpose of effective and lawful investigation police should be occupied with technical police skills, including scientific methods for investigation. The necessity of scientific methods for collection of evidence was upheld by Hon'ble Supreme court in in *State of Gujarat v. Kishanbai*⁴⁶. In this case court gave some directions which has to be followed by State government in order to ensure the same. The Decision of the Hon'ble Supreme Court in *Daramdeo v. State of U.P*⁴⁷ is highly admirable. In this case Supreme

⁴². DR. JOHN P C, POLICING IN THE ACCUSATORIAL SYSTEM 45 (R. Cambray & Co. Private Ltd 2017).

⁴³. LEGAL ENCYCLOPEDIA, <https://www.nolo.com/legal-encyclopedia/what-the-exclusionary-rule.htm> (last viewed on Aug. 26, 2020). According to the rule, courts will suppress evidence that the government obtains through unconstitutional conduct—often an unlawful search or seizure. Suppression means that the evidence in question will be inadmissible for most purposes in the defendant's eventual trial. If a judge suppresses crucial evidence, the prosecution may have no other choice than to dismiss charges.

⁴⁴. The Judge's Rules are a set of guidelines which has to be followed by the police officers while investigating the crimes in U.K.

⁴⁵. Joginder Kumar v. State of Uttar Pradesh, (1994) 4 SCC 260; D. K. Basu v. State of W.B, (1997)1 SCC 416; Also referred in Rini Johar v. State of MP, 2016 (3) KLT 502 (SC); Tehseen S Poonawalla v. Union of India, 2018 (3) KLT OnLine 2057 (SC).

⁴⁶. State of Gujarat v. Kishanbai (2014) 5 SCC 108, 2014 (1) KLT SN 43 (C. No 61). This case is also referred in Rajendra Pralhadrao Wasnik v. State of Maharashtra, 2019 (1) KLT OnLine 3017 (SC).

⁴⁷. Daramdeo Yadav v. State of U.P, 2014 (2) KLT SN 36 (C. No 53) SC. This case is also referred in Ravishankar v. state of Madhya Pradesh, 2019 (4) KLT OnLine 3003 (SC).

Court held the view that due to intimidation, fear and host of other reason the witnesses for the prosecution turns hostile hence the investigating agency has to look for other ways to improve the quality of investigation which can only be through collection of scientific evidence

In short the role of police in maintaining justice is vital as they are responsible for investigation of crime and maintenance of law and order. They are required to perform duties strictly in accordance with statutory mandates and constitutional provisions without any bias, fear or favour.

2.2.2 PROSECUTION

A crime is a wrong⁴⁸ not only against the individual victim, but also against the society as a whole. Therefore the prosecutor represents the victim and participate in the criminal trial against the person accused of a crime and takes the responsibility of prosecuting the accused person. He is a Public servant and should not act on behalf of accused. But he must respect the rights which are available to the accused⁴⁹. He plays an important role in the administration of justice and is bound to assist the Court with his fairly considered view and the court is entitled to take the benefit of fair exercise of his functions⁵⁰. His role in the administration of justice is crucial as he is not representative of aggrieved person, but that of society at large. His primary

⁴⁸. J.W. CECIL TURNER, KENNY'S OUTLINE OF CRIMINAL LAW (Universal Law Publishing W .Pvt Ltd). Crimes are wrongs whose sanction is punitive, and is in no way remissible by any private person, but is remissible by the crown alone, if remissible at all.

⁴⁹. Sunil Kumar Pal v. Phota Sheikh, 1984 4 SCC 533, AIR 1984 SC 1591; This case is also referred in Manohar Chaula v. Union of India, 2019 (1) KLT 277 (SC).

⁵⁰. State of Bihar v. Ram Naresh Pandey, AIR 1957 SC 398. Also referred in Abdul Wahab v. State of Kerala, AIR 2018 SC (W) 4265.

obligation is to help the court in arriving at the truth by advancing all important material on behalf of the prosecution. While discharging his duties he should act in a way that is fair to the investigating agencies, as well as to the accused. In India the system of prosecution consist of Public Prosecutor (including additional Public Prosecutor and Special Public Prosecutor)⁵¹ and Assistant Public Prosecutor.⁵² The special public prosecutors are appointed under section 24(8) of Cr P C who dealswith special cases registered under Special Laws⁵³. The Code of Criminal Procedure (1973) has specifically provided that in every trial before a Court of Sessions, Public Prosecutor shall conduct the prosecution. However, no specific provisions have been made in the code in respect of the conduct of prosecution in the Courts of Magistrates, but as a matter of practice, the prosecution is conducted by the Assistant Public Prosecutor. They are regular full time prosecutors appointed by Home Ministry of the respective State governments.

The Law Commission of India in its 14th Report observed that, "it was unrealistic for the public investigators, in the event that they are individuals from the police organization, to display that level of 'detachment' which was vital in prosecution and recommended that a

⁵¹. Based on the recommendation of Law commission 14th report, 1958 section 24 and 25 were incorporated under the code of Criminal Procedure.

⁵². See. The Code of Criminal Procedure, 1973, S. 25, Acts of Parliament, 1973 (India).

⁵³. See. The Code of Criminal Procedure, 1973, S. 25 (8), Acts of Parliament, 1973 (India). The Central Government or the State Government may appoint, for the purposes of any case or class of cases, a person who has been in practice as an advocate for not less than ten years as a Special Public Prosecutor.

*different prosecution department may be established and put under a Director of Public Prosecutions*⁵⁴”.

Based on the recommendations of the Law Commission, section 25A was incorporated in the Criminal Procedure Code⁵⁵. As a consequence, the Prosecution wing was separated from the Police Department. Pursuant to these provisions, a Director of Prosecution, who functions independently of the Prosecution, heads the Department of Prosecution, under whom, the Assistant Public Prosecutors, and Public Prosecutors have been functioning.

Avory J in *R v. Banks*⁵⁶ stated that in Prosecutors are gatekeepers of the criminal justice process, "throughout the case, he should have the status of Minister of Justice assisting the administration of justice rather than of Minister of Justice. Prosecutor has to perform the duty with due respect to human dignity and upholding human rights. He is an officer of the court and a member of executive branch of government and is independent from judiciary. Among the three wings of Criminal justice system prosecutor enjoys greater trust because he can decide whether to prosecute an arrested person or not⁵⁷. In *Vijay Shankar Mishra v. State of Uttar Pradesh*⁵⁸, it was held that public prosecutor is more than an advocate of the litigant. He holds public office and his duties

⁵⁴. Mr. Justice K. J Reddy, Law Commission of India 14th Report on Reform of Judicial Administration, 1958.

⁵⁵. See The Code of Criminal Procedure, 1973, S. 25 A, Acts of Parliament, 1973 (India). Directorate of Prosecution the State Government may establish a Directorate of Prosecution consisting of a Director of Prosecution and as many Deputy Directors of Prosecution as it thinks fit.

⁵⁶. *R v. Banks*, 1916 (2) KB 621.

⁵⁷. *Phoolsingh v. State of Rajasthan*, 1993 Cri L J 3273. It was held that office of public prosecutor involves duties of public nature and is of vital interest to public.

⁵⁸. *Vijay Shankar Mishra v. State of Uttar Pradesh*, 1999 CriLJ 521.

are of public nature and are accountable not only to the state but also to the public.

Investigation of criminal cases will be rendered fruitless unless there is efficient prosecution machinery. Large number of criminal cases ends in acquittal due to failure of the prosecution. The intention of the Parliament to keep prosecution separate from the police is to investigate the offence and identify the guilt of accused⁵⁹. Hence it was held that prosecution should not be a part of investigation directly or indirectly. But the role of police and prosecution is complementary to each other and there shall be mutual cooperation and harmony in order to conduct effective investigation. In *S.B. Shahane v. State of Maharashtra*⁶⁰ it was held that the objective of keeping prosecutors outside the police control is to ensure independence. If they are under police control it will affect the independence of prosecutor. It is a common complaint of police officers in charge of investigation that there is no proper coordination between police and prosecution. They have duty to state, public, to the accused and therefore to be fair and objective while discharging their duties⁶¹.

*R. Sarala, v. T.S. Velu*⁶², “Investigation and prosecution are two different aspects of the administration of criminal justice. The role of the public prosecutor is within the Court, while the role of the investigation is outside the

⁵⁹. Jai Pal Sing v. State of Uttar Pradesh, 1976 CriLJ 32.

⁶⁰. S.B. Shahane v. State of Maharashtra, AIR 1995 SC 1628.

⁶¹. Mr. Justice M Jagannadha Rao, *Law Commission of India 197th Report on Public Prosecutor's Appointment*, 2006 p.13.

⁶². R. Sarala, v. T.S. Velu, AIR 2000 SC 1731. Also referred in *Ishwar Pratap Singh v. State of UP*, (2018) 13 SCC 612.

jurisdiction of the Court. Normally, the role of the public prosecutor begins after the investigation agency presents the case to the Court at the conclusion of the investigation. The involvement of the public prosecutor in the investigation is both unjust and pernicious in law”.

Though the Indian public prosecutors are theoretically independent and free, they face lot of executive and political interference. Political interference is possible in the process of withdrawal of prosecution under section 321 Cr P C⁶³. The Prosecutor has no legal obligation to consult the police or any other executive authority for withdrawal of a case.

Duty of public prosecutor is to place all the materials available with him before the court stating by what evidence he proposes to prove the guilt of accused. He must present a complete picture and should be fair to prosecution as well as to the accused⁶⁴. For successful prosecution there shall be cooperation and understanding between these agencies. He is an authority to determine whether the evidence is sufficient, selection of witnesses, scrutiny of charge sheet etc. He is responsible for conduct of prosecution but he cannot interfere in investigation⁶⁵. He is not to be totally guided by instructions of the Government and is required to constantly remember his duty to the court as well as his duty to the collective. He has an important role under the statutory scheme and is expected to acts as independent persons⁶⁶.

⁶³. See The Code of Criminal Procedure, 1973, S. 321, Acts of Parliament, 1973 (India).

⁶⁴. Prabhu Dayal Gupta v. State of Delhi, 1986 CriLJ 383.

⁶⁵. *Mohd. Shahabuddin* v. State of Bihar, 2010 (3) SCJ 490.

⁶⁶. Abdul Wahab v. State of Kerala, AIR 2018 SC(W) 4265.

Apart from Code of Criminal Procedure and Supreme Court guidelines International Standards adopted by UN prescribe some guidelines to Public prosecutors.⁶⁷

Investigation of a criminal case will be rendered fruitless, if the prosecution agency is inefficient or incompetent. One of the well-known causes for the failure of large number of criminal cases is the poor performance of prosecutors. They are the essential agents of administration of justice. They should respect and protect human dignity and should uphold human right. Today large numbers of criminal cases end in acquittal due to the poor performance of prosecutors. In practice the prosecution on whom the burden of proof lies does not study the cases properly. But the accused on whom the burden of proof is very little engages very competent lawyers hence the defence lawyers succeed in creating doubts in the mind of the court. Ultimately the cases will end in acquittal of accused person. For the smooth functioning of criminal justice system they should have sufficient independence or autonomy to take the decisions regardless of their outside pressure. They should be protected against arbitrary action by the government. In view of the risk of politicization of prosecution services, it is important to ensure transparency in the appointment process. Clear criteria for appointment should be laid down. 50% from practicing advocate in Sessions court and 50% from assistant public Prosecutors of Magistrate Court on promotion basis. The increasing complexity

⁶⁷. See Article 12, 13 and 20 of U.N. Guidelines on role of prosecutors adopted by the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, Havana, Cuba, 27 August to 7 September 1990.

of crime has required that new skills be developed in prosecution services with specialised legal and forensic knowledge. Advanced training should be provided to prosecutors in forensic evidences such as DNA, and crime scene investigation.

Now investigating agencies are using different scientific methods for conducting investigation, but due to the professional incompetence of prosecutors they failed to prove the relevance of scientific evidence during the course of examination. In order to prove the case beyond reasonable doubt prosecutors should also be efficient and competent to explain the relevancy and admissibility of scientific evidences.

2.2.3 COURTS

As the third pillar of the constitution, Courts play a vital role in the functioning of a democratic state, which is based on 'Rule of law' related to social, economic and political aspects of justice as stipulated in the Preamble to the Constitution. Law is the means and justice is the end⁶⁸. The duty of the judge is not only to interpret what the law is but also to decide the case as per the evidences and proof submitted by the parties. Judges have also supervisory duty to overview the work of police, prosecution and defense counsel but not to interfere in it. After considering all the evidences submitted by the parties, the court shall determine whether the accused is guilty or not⁶⁹.

⁶⁸. Maneka Gandhi v. Union of India, AIR 1978 SC 597 at P.658

⁶⁹. Sunil Kumar Pal v. Phota Sheikh and ors, AIR 1984 SC 1591. Justice P N Bhagawati along with V B Eradi held that No citizen should go away with the feeling that he could not

In the adversarial system which relies on skill of lawyers, judge is a neutral umpire, trying to ascertain truth of the case. He is an observer tries to find out whether prosecution has been able to prove the case beyond reasonable doubt. This system does not impose a positive duty on a judge to discover the truth, and he plays a passive role.

*In Jones v. National Coal Board*⁷⁰ Lord Denning highlighted the limited role of judges in an adversarial system. The judicial function of dealing with cases justly in an adversarial system requires a first instance judge to hear and determine the issues raised by the parties, not to conduct an investigation or examination on behalf of society at large. That does not mean the judge is a mere umpire to answer the question.

With regard to the role of judiciary in criminal justice system, Hon'ble Supreme Court held that under adversary system even though the court is only a spectator, he should be vigilant in eliciting necessary materials from witnesses which are necessary for reaching the correct conclusion⁷¹.

Section 165 of Indian Evidence Act⁷² gives unrestricted power of judges to put questions during the course of trial. This section is intended to arm the

get justice from the court because the other side was socially, economically or politically powerful and could manipulate the legal process. That would be subversive of the rule of law.

⁷⁰ Jones v. National Coal Board, (1957) 2 All ER 155.

⁷¹ Zahira Habibulla Sheikh and anr v. State of Gujarat and ors, (2004) 4 SCC 158.

⁷² C D FIELDS, LAW OF EVIDENCE 1455 (Delhi Law House 2008). Section 165 of the Indian Evidence Act, 1872; Judge's power to put questions or order production. The Judge may, in order to discover or to obtain proper proof of relevant facts, ask any question he pleases, in any form, at any time, of any witness, or of the parties, about any fact relevant or irrelevant; and may order the production of any document or thing; and neither the parties nor their agents shall be entitled to make any objection to any such question or order, nor, without the leave of the Court, to cross-examine any witness upon any answer given in reply to any such question: Provided that the Judgment must be based upon facts declared by this Act to be relevant, and duly proved: Provided also that this section shall not authorize any Judge to compel any witness to answer any question, or to produce any document which such witness would be entitled to refuse to answer or produce under sections 121 to 131, both inclusive, if

judge with most extensive power possible for the purpose of getting the truth. The effect of this section is that in order to get to the bottom of the matter before it, the court will be able to look at and enquire into every fact whatever.⁷³ The judge may in order to discover, or to obtain proper proof of relevant facts, exercise very discretionary powers and can ask any questions as he pleases, but no party is entitled to object to any such questions or order. But there are certain restriction to very wide discretion, like the witness cannot be compelled to answer any questions or to produce any document contrary to section 121⁷⁴ to 131 or any questions contrary to section 148 (2)⁷⁵ or 149⁷⁶. The questions must not be to frighten, coerce, confuse or intimidate the witnesses⁷⁷.

At the time of passing of Indian Evidence Act Sir James Stephens observed that

the questions were asked or the documents were called for by the adverse party; nor shall the Judge ask any question which it would be improper for any other person to ask under section 148 or 149; nor shall he dispense with primary evidence of any document, except in the cases hereinbefore excepted.

^{73.} RATHAN LAL AND DEERAJ LAL, LAW OF EVIDENCE 1990 (Lexis Nexis 2016).

^{74.} See Indian Evidence Act, 1872, S. 121, Acts of Parliament, 1872, (India). No Judge or Magistrate shall, except upon the special order of some Court to which he is subordinate, be compelled to answer any question as to his own conduct in Court as such Judge or Magistrate, or as to anything which came to his knowledge in Court as such Judge or Magistrate; but he may be examined as to other matters which occurred in his presence whilst he was so acting.

^{75.} C D FIELDS, LAW OF EVIDENCE 1403 (Delhi Law House 2008). Section 148 (2) of Indian Evidence Act, 1872; Such questions are improper if the imputation which they convey relates to matters so remote in time, or of such a character, that the truth of the imputation would not affect, or would affect in a slight degree, the opinion of the Court as to the credibility of the witness on the matter to which he testifies.

^{76.} C D FIELDS, LAW OF EVIDENCE 1405 (Delhi Law House 2008). Section 149 of Indian Evidence Act, 1872; Question not to be asked without reasonable grounds, No such question as is referred to in section 148 ought to be asked; unless the person asking it has reasonable grounds for thinking that the imputation which it conveys is well.

^{77.} Ram Chander v. State of Haryana, 1981 CriLJ 609.

“it is absolutely necessary that judges should not only be hear what is put before him by others, but that he should ascertain by his own enquiries how the facts actually stand. In order to do this, it will frequently be necessary for him to go into matters, which are not they, relevant to the matter in issue. But may lead to something that is , and it is in order to arm judges with express authority to do this that section 165, which has been so much objected to, has been framed”⁷⁸

In *Sahabuddin & Anr v. State of Assam*⁷⁹ it was held that

It is a settled principle of law that while appreciating the evidence, the Court must examine the evidence in its entirety upon reading the statement of a witness as a whole, and if the Court finds the statement to be truthful and worthy of credence, then every variation or discrepancy particularly which is immaterial and does not affect the root of the case of the prosecution case would be of no consequences.

In *Zahira Habibullah Sheikh v. State of Gujarat*⁸⁰ it was held that ‘Right from the inception of the judicial system it has been accepted that discovery, vindication and establishment of truth are the main purposes underlying existence of Courts of justice. Judges have to take a participatory role in trial. They are not expected to be tape recorders to record whatever is being stated by witnesses⁸¹,’

⁷⁸. RATHAN LAL AND DEERAJ LAL, LAW OF EVIDENCE 1638 (Lexis Nexis 2017).

⁷⁹. *Sahabuddin & Anr v. State of Assam*, (2012) 13 SCC 213.

⁸⁰. *Zahira Habibullah Sheikh v. State of Gujarat*, AIR 2006 SC 1367.

⁸¹. *Zahira Habibullah Sheikh v. State of Gujarat* A.I.R. 2006 SC 1367 at para 22.

Hence Section 165 of Indian Evidence Act confers vast and wide powers on the judges to actively participate in the trial and to elicit all necessary materials for reaching the correct conclusion. Even if the prosecutor omits or remits something, the court can control proceedings effectively so that ultimate objective that is truth is arrived at. Hence bounden duty cast upon the judges to ensure that guilty person is punished and innocent person is acquitted.

Similarly in the Code of Criminal procedure, section 311⁸² and section 319⁸³ gives immense power to the court which must be used in appropriate cases, to reach the matter of truth. The object of section 311 Cr P C is to give power to the court to summon a material witness or to examine a person in court to recall a witness, already examined, when exigencies of justice required. Where the whole truth was not brought out by the prosecution witnesses, the court could on its own call those eyewitnesses not called by the prosecution but named in the F I R.⁸⁴ A witness examined by the court under section 311 Cr P C is Court witness and can be cross examined by the prosecution and defence. The power under section 319 Cr P C is also discretionary and must be exercised judicially having regard to the facts and circumstances of each case. By these provisions court can order framing of charge under section 319 against persons who were earlier discharged at the enquiry stage.

⁸². See The Code of Criminal Procedure, 1973, S. 311, Acts of Parliament, 1973 (India).

⁸³. See The Code of Criminal Procedure, 1973, S. 319, Acts of Parliament, 1973 (India). d.

⁸⁴. Partap v. State of U.P., 1976(2) SCC 798.

Even under the adversarial system in India, there are provisions for active participation of judges, but these provisions are almost remain in dead letters. In practical side very rare a trial magistrate or even a session judge summons on his own a material witness in a criminal case. In India it is always left to the prosecution and if prosecution fails to call such a witness, the accused is acquitted.

In *State of Rajsthan v. AnialsiasHanif and others*⁸⁵, Justice Chinnappa Reddy held that,

Criminal justice is not to be founded on erroneous answers spelled out by witness during evidence collecting process. It is a useful exercise for trial judge to remain for the criminal Court to become compelling instrument in dispensing justice, the Presiding Judge must stop to being a mere observer and cease to act as recording machine by becoming a participant in the trial evincing intelligence, active interest and elicit all important materials fundamental for arriving at the truth, to discover reality, and administer justice with fairness and impartiality both to the parties and to the community it serves.”

In the above case the court concluded that, “even if the prosecutor is remiss in some ways, Court can control the proceedings effectively in order to arrive at the objective of criminal law, search for truth”. This position was also

⁸⁵. *State of Rajasthan v. Anialsias Hanif and others*, 1997 (6) SCC162.

upheld in *Patel Mahesh Bhai Ranchodbhai v. State of Gujarat*⁸⁶. If a witness becomes hostile to subvert the judicial process, the court shall not stand as a mute spectator and every effort should be made to bring the truth. *Hemudan Nanba Gadhvi v. State of Gujarat*⁸⁷ Offence under section 193 IPC⁸⁸ can be charged against hostile witnesses and the system cannot be overturned by gullible witnesses who act under pressure, inducement or intimidation.

Judges should be seekers of truth instead of proof. Judges are last hope of a man. The society is entrusted a great faith in him. He is neither spectator nor recording machine⁸⁹.

It is the duty of a judge to discover the truth and for that purpose he may ask any question, in any form, at any time, of any witness or of the parties, about any fact, relevant or irrelevant. But this he must do, without unduly trespassing upon the function of a public prosecutor and defence counsel, without any hint of partnership and without appearing to frighten or bully witnesses. He must take the prosecution and defence with him. The court, prosecution and defence must work as a team whose goal is justice, a team whose captain is the judge. The judge like conductor of a choir must by force of personality induce him

⁸⁶. Patel Mahesh Bhai Ranchodbhai v. State of Gujarat, (2014) 14 SCC 657. As the criminal court are effective instrument for dispensation of justice, presiding judge must be ceases to be spectator and a mere recording machine by becoming a participant in the trial evincing intelligence, active interest and elicit all relevant materials necessary for reaching the correct conclusion to find out truth, and administer justice with fairness and impartiality both to the party and community it serves.

⁸⁷. Hemudan Nanba Gadhvi v. State of Gujarat, 2019 (1) KLJ 179 (SC); 2018 (4) KLT OnLine 3058 (SC).

⁸⁸. Indian Penal Code, 1861, S. 197, Acts of Parliament, 1861 (India).

⁸⁹. Ram Chander v. State of Haryana, AIR 198 1 SCC 1036.

to work in harmony, subdue the raucous, encourage the timid, conspire with youth, flatter the old.”⁹⁰

The constitutional duty of the court is to say what law is. In discharging this function the court is the final arbiter and therefore, its role in our system of governance is powerful and unique⁹¹. Honourable Supreme Court held that the basic purpose of law is the quest for justice which should be administered without fear or favour. The administration of justice and judges is open to public scrutiny, they are accountable to the society and their accountability must be judged by conscience and oath of their office. The judges are interpreter of law and must therefore become an equal participant in the task of socio economic reconstruction. Justice Bhagawati in an article on “Administration of justice” mentioned about the judiciary that “judicial process in this country should invoke in the mind of common man a sense of complete loyalty and confidence, judges must learn to associate ethical considerations with their work. He had also noted that about the functioning of judiciary confidence of the public is the only source on which strength of administration of justice rests, and we must constantly endeavour to deserve the confidence of common man⁹². About the disobedience to law Dean Rosco Pound stated that “All of the procedures in the administration of justice revolve around the court system. If an individual is believed to have violated the law, the concern is to

⁹⁰. Ram Chander v. State of Haryana, AIR 1981 SCC 1037.

⁹¹. H.R.BHARDWAJ, CRIME CRIMINAL JUSTICE AND HUMAN RIGHTS 104 (Konark Publishers Pvt Ltd 2013).

⁹². K. D. GAUR, CRIMINAL LAW CRIMINOLOGY AND ADMINISTRATION OF CRIMINAL JUSTICE 14 (Universal Law Publishing Lexis Nexis 2015).

bring the person before the courts in a proper manner, to provide him a trial in court, and to follow through with the disposition or judgment made by the court”⁹³.

Law making is an inherent and inevitable part of judicial process. When a judge is concerned with interpretation of a statute there is ample scope for him to develop and mould law. He must tune it with upholding social values of society. The social philosophy, his attitude, his approach and predictions affect the decision making process. He should be kept in mind laws are not rigid and static. It has to change according to changing needs of society.

It is true that, in the Criminal Justice System of India, the complainant, victims of the crime and relatives of the victims have no free hand at the stage of investigation or at the stage of trial, but in the recent times, the Indian Courts as well as the Indian Legislatures have tried to make the procedural rules of Criminal Justice System more victims friendly specially in relation to crimes against women and weaker sections of society.

2.3. PROBLEMS FACED BY CRIMINAL JUSTICE ADMINISTRATION

The administration of criminal justice in India ranks one of the most efficient judicial systems of the world. But there are certain problems which adversely affect the justice system. Government of India appointed Justice V.S. Malimath as the Chairman of the Committee for Reformation of Criminal

⁹³. K. D. GAUR, CRIMINAL LAW CRIMINOLOGY AND ADMINISTRATION OF CRIMINAL JUSTICE 89-91 (Universal Law Publishing 1952).

Justice in the year 2000 to examine the fundamental principles of Criminal jurisprudence in the country and to identify weaknesses of Criminal justice system and suggest remedies. It has submitted its report in 2003 with 158 recommendations. Some of the recommendations have been implemented but many of it has not yet been accepted. When we discuss about the criminal justice system Malimath Committee recommendation is the starting point of reference. The major problem pointed out by the Committee were decreasing rate of conviction, huge pendency and inordinate delay in disposal of cases⁹⁴ in most of the states.

2.3.1 LOW RATE OF CONVICTION

The national conviction rate in India for offences under the Indian Penal Code is around 46%⁹⁵. The state with the highest conviction rate is Kerala, at about 84%, while the one with the lowest rate is Bihar, at around 10%. But at the same time crime rate of violent crimes are on the increase due to technological innovations⁹⁶. Data on analysis shows a significant decline in conviction rate which reflects deteriorating performance of the agencies involved in justice administration. Despite having an Independent Judiciary, India has been witnessing a steady decline in the standards of criminal justice administration leading some observers to say that “Crime does pay and

⁹⁴. Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2003 Para 1.3.

⁹⁵. National Crime Record Bureau, *Crime in India*, Ministry of Home affairs, (2019).

⁹⁶. The latest report by the National Crime Records Bureau noted that in 2018, 34,000 rapes were reported out of which only 27 per cent ended in conviction. Arun Bothra, *Out Look*, THE NEWS SCROLL (Mar, 19, 2020, 5:01 PM).

criminals have little to fear⁹⁷. Kerala High Court in *M.G. George Muthoot v. State of Kerala*⁹⁸ held that conviction rate in India is hardly 30 to 40%. These figures, when compared to other nations like USA, UK, France and Germany where conviction rate is almost 80 to 90%, definitely indicate that something is wrong somewhere in our criminal justice delivery system. The most important reasons for the decreasing rate of conviction are inefficient investigation and failure of the prosecution to prove the case beyond reasonable doubt.

a) Inefficient investigation

In the criminal justice system police play a crucial role and its failure may often lead to break down of criminal justice system. Some of the common problems seen in the investigation are false witness, intentional delay, refusal to register F I R. omission of important facts in F I R, threatening of witnesses, failure to collect requisite evidence, accusation against innocent persons, lack of scientific investigation etc. The misuse of investigative powers and faulty investigation may always lead to acquittal of accused person. In *Hussainara Khatoon v. Home Secretary, State of Bihar*⁹⁹, court reiterated that investigation must be completed within time bound programmes in respect of under trials and gave strict orders to be followed for under trials.

⁹⁷. Dr. N R Madhava Menon, *Criminal Justice Reforms: A Fresh Look on Malimath Committee Recommendations*, 39 Journal of Constitutional and Parliamentary Studies 11-14 (2005).

⁹⁸. M.G. George Muthoot v. State of Kerala, 2010 (1) KLT 399.

⁹⁹. Hussainara Khatoon v. Home Secretary, State of Bihar, AIR 1979 SC 1369.

Malimath Committee reported that the standard of police investigation in India remains poor and there is considerable room for improvement¹⁰⁰. Supreme Court of India in number of cases had criticized the investigating agencies that the most important reason for the acquittal rate is incompetency of investigating officers. In *Sonalalsoni v. state of Chattisgrh and others*,¹⁰¹ investigating agency failed to prepare seizure memo while preparing charge sheet. Court criticized that investigating officers had not conducted investigation in a fair and transparent manner and the same is conducted keeping them in dark, without informing the victim about the progress of investigation, which is not fair and detrimental to them. Court emphasized that due to unfair investigation by incompetent officer the large number of cases are resulting in acquittals and the rate of conviction by the Indian Courts is not more than 8%, whereas in Singapore the Criminal Laws are almost similar to Indian Laws but even then the rate of conviction in Singapore is more than 90%.

The factors for such acquittals in most of the case are the lack of competency of the investigating agency, not conducting investigation in a

¹⁰⁰ Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2003 p.90. This report mentioned the situation in Bihar. The Bihar Police Commission (1961) noted with dismay that “during the course of examination of witnesses, no complaint has been so universally made before the Commission as that regarding the poor quality of police investigation”. Besides inefficiency, the members of public complained of rudeness, intimidation, suppression of evidence, concoction of evidence and malicious padding of cases. Almost in the same vein, the Punjab Police Commission (1961-62) bemoaned poor quality of police investigation. A frequent complaint relating to the method of investigation are unjustified and unexplained long delay on the part of investigating officer in recording statement of material eyewitness during investigation will render evidence of such witness unreliable. A complaint received by the Punjab Police Commission was that all cases were not investigated by one officer but several officers in succession.

⁹⁹ *Sonalal Soni v. State of Chattisgarh and others*, 2005 CriLJ 4461.

scientific manner, not collecting the clinching circumstantial evidence and wholly depending upon the evidence of eyewitnesses which is always a very dangerous thing.

It is not necessary that such misuse should result in to some prejudice to the prosecution case. Only the deliberate act or irresponsible attitude of the investigating officer is sufficient to prove that there has been misuse of investigative power by the concerned police officer.

*Kashmiri Devi v. Delhi Administration & Another*¹⁰², is an unfortunate case which tends to shake the credibility of police investigation and undermines the faith of common man in Delhi Police which were supposed to protect life and liberty of citizens and maintain law and order. In this case the investigating officer had converted the case from 302 IPC to 304 IPC on flimsy grounds within hours of the registration of the case even without waiting for the post-mortem report. *State of Gujarat v. Kishanbhai*¹⁰³ was a clear violation of misuse of investigative powers by police. Court criticized the investigating officers that even after great advancement in the field of in scientific investigation investigating agencies failed to conduct DNA profiling test which will give clear picture whether blood of the victim was in the cloth of accused.

Law Commission of India, in its 14th Report on Reform of Judicial Administration 1958 mentioned that

¹⁰² *Kashmeri Devi v. Delhi Administration & Anr*, 1988 SCC 482. This case is also referred in *Neetu Kumar Nagaieh v. State of Rajasthan*, 2020 (5) KLT OnLine 1163 (SC).

¹⁰³ *State of Gujarat v. Kishanbhai*, 2014 5 SCC 108.

“Criminal justice system in India is either Collapsing or Collapsed. Committee pointed out that one of the major reasons for the decreasing rate of convictions are faulty or slipshod investigation by the police which, in turn, is largely due to inadequate staff for investigational work and inability of the concerned police officers to pursue investigation on day-to-day basis with a sense of commitment and determination”¹⁰⁴.

Even though police is considered to be the most important functionary of criminal justice system as an agency for searching truth but the manner in which police investigations are conducted is of critical importance to the functioning of the Criminal Justice System. 14th Law commission also held that crime investigation is a highly specialized task which requires professional attitude, skill, patience, and scientific temperament¹⁰⁵. Malimath committee on reforms of Criminal justice pointed out that important problem faced in

¹⁰⁴. Mr. Justice K. J Reddy, Law Commission of India 14th Report on Reform of Judicial Administration, 1958.

¹⁰⁵. Mr. Justice K. J Reddy, Law Commission of India 14th Report on Reform of Judicial Administration, 1958 p.765 at para 2. A sample survey conducted under the auspices of the National Police Commission in six States covering different parts of the country revealed that an average investigation officer was able to devote only 37 per cent of his time to investigational work while the rest of his time was taken up by other duties. The National Police Commission emphasized the urgent need for increasing the strength of the cadre of Investigating Officers and also for earmarking some staff for exclusively attending to investigational work. Sadly, this important recommendation of the commission is yet to be implemented. Slipshod investigation by the police is also due to lack of their professional ability and competence in crime investigation. There is no denying the fact that crime investigation is a highly specialized job which requires professional aptitude, skill, patience and scientific temperament. Unfortunately most of the police officials involved in investigational work do not have these qualities in adequate measures. They are not sufficiently exposed to rigorous training and refresher courses to acquire necessary knowledge, skill and aptitude for crime investigation.

criminal investigation was the lack of criminal investigation with proper use of technology¹⁰⁶.

An investigating officer is expected to act diligently and strictly in accordance with the law. Any deviation from the professional standards during the course of investigation is to be dealt with seriously, which may result in infringement of rights of victim as well as to the society.

b) Difficulty to prove beyond reasonable doubt

The fundamental principle of criminal jurisprudence that the accused is presumed to be innocent and the burden of proving the accused is guilty lies on the prosecution. As far as standard of proof is concerned, it is governed by the judicial precedents that the standard in criminal cases shall be proved beyond reasonable doubt¹⁰⁷. If there is reasonable doubt in the prosecution story about guilt of accused, benefit of doubt must go to him.

The maxim presumption of innocence and benefit of doubt was so popular in *Woolmington. v. D.P.P*¹⁰⁸ throughout the Commonwealth countries

¹⁰⁶. Mr. Justice K. J Reddy, *Law Commission of India 14th Report on Reform of Judicial Administration*, 1958 p.765 See p.271.

¹⁰⁷. BRYAN A GARNER, *BLACK'S LAW DICTIONERY*, 9th Edition (2009) p. 1535. Standard of proof is the degree or level of proof demanded in specific case such as beyond reasonable doubt or preponderance of probability”.

¹⁰⁸. In *Woolmington v. D.P.P* 1935 AC 468. ‘‘Throughout the web of English Criminal Law one golden thread is always to be seen, that it is duty of the prosecution to prove the prisoner’s guilt subject to statutory exceptions. If at the end of the trial and on the whole sensible man may fairly and reasonably entertain, not the doubts of a vacillating mind that has not the moral courage of the case, there is a reasonable doubt created by the evidence given either by the prosecution or the prisoner, as to whether the prisoner killed the deceased with a malicious intent, the prosecution has not made out the case and the prisoner is entitled to acquittal. No matter what the charge and where the trial, the perception that the prosecution must prove the guilt of the prisoner is part of the common law of England and no attempt to whittle it down can be entertained’’. This means that the Court in convicting the accused

and several eminent judges quoted these observations. In *Kali Ram v. State of H.P.*¹⁰⁹ it was held that it is fundamental to adversary trial that the prosecution must prove its case beyond the shadow of doubt.

The principle of burden of proof is defined under section 101 Indian Evidence Act, 1872¹¹⁰, which support the presumption of the innocence of accused to the extent that if there were any gaps or lacunae in the evidence of the prosecution, the accused and not the prosecution would be entitled to get benefit of doubt. Any act or omission on the part of the prosecution giving rise to any reasonable doubt would go in favour of the accused.

The Indian criminal justice system has always been criticized that the system protects the rights of guilty and punishes the innocent and its failure has encouraged the habitual offenders to commit further crimes as they are not afraid of punishments. In *State of U.P. v. Pussu*¹¹¹, it was held that letting the guilty escape is not doing justice according to law. A reasonable doubt is not an imaginary, trivial or merely possible doubt, but a fair doubt based upon reason and common sense, growing out of the evidence¹¹².

should take greatest possible care. In an Adversarial system the presumption is that accused is innocent until the contrary is established. The golden thread which runs through the web of administration of administration of criminal case is that if two views are possible on the evidence adduced in the case, one pointing to guilt of accused and the other to his innocence, the view which is favorable to the accused should be adopted.

¹⁰⁹. *Kali Ram v. State of H.P.*, 1973 SCC 1048. This case is also referred in *Jabbar v. state of Kerala*, 2020 (5) KLT 12.

¹¹⁰. Indian Evidence Act, 1872, S. 101, Acts of Parliament, 1872, (India).

¹⁰⁹. *State of U.P. v. Pussu*, 1983 AIR 867; 1983 SCR (3) 294.

¹¹². Dr. N R Madhava Menon, *Report of The Committee on Draft National Policy On Criminal Justice*, Government of India, Ministry of Home Affairs, 2007 p.24 at Para 6.2. The draft National Policy on Criminal justice system “Benefit of doubt never considered as a defence to escape guilt by creation of doubts in the mind of judges. In the present day, the

In order to prove the case beyond reasonable doubt investigating agency has to place all relevant materials before the prosecutor. Unless a competent prosecution follows a fair and competent investigation ultimate analysis would be futile. Investigation as well as the prosecution should be competent¹¹³.

Benefit arises from faulty investigation will definitely go to accused and not to prosecution. There is indeed a long distance between accused `may have committed the offence and must have committed the offence which must be traversed by the prosecution by adducing reliable and cogent evidence. Presumption of innocence has been recognized as a human right which cannot be wished away¹¹⁴. Due to inefficient prosecution and investigation Hon'ble Supreme Court ordered retrial after the pronouncement of judgement by the lower court¹¹⁵.

While dispensing justice, people should be satisfied that state is not misusing the state machinery like Police, prosecutors and judges¹¹⁶. Public prosecutor is an organ of executive side of government. His prime duty is to prove the case beyond reasonable doubt. For successful prosecution there shall be cooperation and understanding between these agencies. He is an authority to determine whether the evidence is sufficient, selection of witness's scrutiny of

understanding and application of the axiom "proof beyond reasonable doubt" is taken to mean "beyond doubt", or "beyond any doubt", or "beyond any shadow of doubt". It is, however, the need of the time that the said axiom may be clarified by the legislature in a terse, clear and precise language and if desired, illustrated by examples from time - honored cases decided by the courts in England and India.

¹¹³: Sonalal Soni v. State of Chhattisgarh, 2005 CriLJ 4461.

¹¹⁴: Kailash Gour v. State of Assam, (2012) 2 SCC 34.

¹¹⁵: Zahra Banu v. State of Gujarat, 2006 (2) KLT 350 (SC); AIR 2006 SC 1367.

¹¹⁶: Mohd. Shabudhin v. State of Bihar, 2010 (3) SCJ 490.

charge sheet etc. He is responsible for conducting of prosecution but he cannot interfere in investigation.

The ideas of proof beyond reasonable doubt and benefit of doubt to accused were evolved to humanize the system particularly in difficult circumstances with a view to avoid miscarriage of justice and to ensure natural justice. The maxim “Let hundred guilty go unpunished rather than one innocent is punished” is now benefited to persons who are committing grave offence and persons who are financially sound. The entire criminal justice system is concerned more on the rights of accused than on the injured victim. For justice to be done truth must prevail since the truth is the very soul of justice. This can be achieved by statutorily mandating the courts to become active seekers of truth¹¹⁷. Failure to ascertain truth may be on account of errors or omissions on the part of investigating agency, and prosecution failures.

About the undue importance to rule of benefit Justice Krishna Iyer in *Shivaji sahabano Bobade v. State of Maharashtra*¹¹⁸ held that

The dangers of exaggerated devotion to the rule of benefit of doubt at the expense of social defence and to the soothing sentiments that all acquittals are always good regardless of justice to victim and community, demand special emphasis in the contemporary context of escalating crime and escape. The judicial instrument has public

¹¹⁷ Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2013 p.29 at Para 2.16.8

¹¹⁸ *Shivaji sahabano Bobade v. State of Maharashtra* 1973 AIR 2622, 1974 SCR (1) 489. The case is also referred in *Satish Kumar v. State of Himachal Pradesh*, AIR 2020 SC 1766.

accountability. The cherished principles or the golden thread of proof beyond reasonable doubt which runs through the web of our law should not be stretched morbidly to embrace every haunch, hesitancy and degree of doubt. The excessive solicitude reflected in the attitude that a thousand guilty men go but one innocent martyr shall not suffer is a false dilemma. Only reasonable doubt belongs to the accused. Otherwise any practical system of justice will then breaks down and lose credibility with the community.

While introducing this golden rule judge must see that guilty does not escape from the hands of law¹¹⁹. Division bench of Kerala High Court recently set aside the judgement of Palakkad Special Court for POCSO cases which acquitted all accused in a case relating to death of two minor Dalit siblings. Court also ordered for a retrial and remanded the case to the POCSO Court. The special Court in this case acquitted all accused pointing out that there were no scientific evidence in order to connect the accused to alleged offence and there were contradictions in the depositions of prosecution witnesses. The state government in appeal also admitted that there was a dereliction of duty from public prosecutor and there were no ordination between investigation and prosecution from the initial stage itself.

The Hon'ble High Court pointed out that

¹¹⁹. DR. JOHN P C, POLICING IN THE ACCUSATORIAL SYSTEM 30 (R.Cambray & Co. Private Ltd 2017).

“...we are fully convinced that the perfunctory initial investigation and cursory, desultory and unskilled prosecution coupled with the lack of involvement by the trial Judge resulted in miscarriage of justice and the consequential unmerited acquittals in all these cases”.

This case clearly shows that the main reasons for acquittal in criminal cases are the lack of coordination between two important agencies of the criminal justice administration Police and prosecution. In most of the cases investigation are perfunctory investigation, prosecutors are unskilled and no active involvement of trial judge.

2.3.2 HUGE PENDENCY AND INORDINATE DELAY IN DISPOSAL OF CASES

The problem of delay in the disposal of cases pending in trial Court is currently one of the major problems of judicial administration, although it has been with us since a long time¹²⁰.

‘Justice delayed is justice denied’ is based on concept of fair trial and is inherently associated with functioning of Indian judicial system. Fair trial means that, the trial should be fair both to the victim as well as to the accused. Speedy trial is the element of a fair trial which is guaranteed by Article 21 of the Constitution of India¹²¹. If it drags for unreasonable long time it will affects the interests of society, victim and accused. Long delay has also the effect of

¹²⁰ M C Setalvad, *Law Commission of India 77th Report on Delay and Arrears in trial Courts* (1978) p.1 at Para 1.1.

¹²¹ Constitution does not specifically guarantee fundamental right to speedy trial but it has been included implicitly in Article 21 due to judicial activism in *Hussainara Khatoun v. Home Secretary, State of Bihar*, (1980) 1 SCC 81.

defeating Justice in quite number of cases. A procedure which does not provide speedy trial and not disposed within a reasonable period cannot be said to be just and fair trial. Inordinate delay tends to result in unjustified acquittals. A Court of Law is a temple of Justice where people go with the hope and belief that justice will be done to them. Justice must be done within a reasonable time, as Justice delayed is Justice denied.

Indian Courts have large number of backlog of cases and former Chief justice of India Sri Deepak Misra in his interview with 'Times of India', remarked that 3.3 Crore backlog cases are pending in Courts While 2.84 Crore cases are pending in the subordinate courts, the backlog clogging the High Courts and Supreme Court is 43 lakh and 57,987 cases, respectively.

Taking note of the magnitude of the problem, former Chief Justice of India, in his letters said that the 'new mechanism must be put in place in addition to the Arrears committees set up earlier to formulate steps to reduce pendency at High Courts and District courts'.

Y.K. Sabharwal, the former Chief Justice of India in a lecture delivered "In an adjudicatory system whether inquisitorial or adversarial" expressed that expected life span of a case is an inherent part of the system, No one can expect a case to be decided overnight. However, difficulty arise when the actual time taken for disposal of the case far exceeds its expected life span and that is when the researcher say there is delay in dispensation of justice. Law Commission of India in its Seventy-Seventh Report has observed that, "Long delay in the

disposal of cases has resulted in huge arrears and a heavy backlog of pending file in various courts in the country¹²². Prolonged pendency of cases may lose confidence and faith in justice system.

In *Moti Ram. v. State of M.P*¹²³, Justice Krishna iyer observed that “Speedy trial is essential in order to gain confidence in criminal justice system. In this case it was also observed that consequences of pre-trial detention are grave, accused though presumed be innocent are subject to psychological and physical deprivations of jail life. Honourable judge also held that, the burden of his detention frequently falls heavily on the innocent members of his family”.

Free and fair trial is sine-qua-non¹²⁴ of Article 21 of the Constitution of India¹²⁵. If the criminal trial is not free and fair and not free from the bias, then the confidence of the public in the judicial fairness of a judge and the justice delivery system would be shaken. Fair trial necessarily includes fair and proper opportunity to the prosecutor to prove guilt of the accused and opportunity to the accused to prove his innocence. Delay of investigation for 17 years without any explanation held to be violated constitutional guarantee for speedy investigation which is guaranteed by Article 21 of the constitution¹²⁶. In most of the cases delay occurs as the investigating agency conduct investigation in

¹²². M C Setalvad, *Law Commission of India 77th Report on Delay and Arrears in trial Courts* (1978) p.1 ; A bare glance at the statements of the various types of cases pending in different courts and of the duration for which those cases have been pending is enough to show the enormity of the problem. Prolonged pendency of cases may lose confidence and faith in justice system.

¹²³. *Moti Ram. v. State of M.P*, 1978 4 SCC 47 at P.52 at Para 14.

¹²⁴. According to websters dictionary meaning something absolutely indispensable or essential. MERRIAM – WEBSTER, MARIAM WEBSTER’S COLLEGE DICTIONARY (Spring field 2003)

¹²⁵. *Sanjeev Nanda v. The State*, 2012(8) SCC450. (BMW Hit and Run case)

¹²⁶. *Vakil Prasad v. State of Bihar*, 2009 CriLJ 1731.

conventional manner. In *State of Gujrat v. Kishanbai*¹²⁷, Court criticised the investigating agency that in spite of so much advancement in the field of forensic science, it has seriously erred in carrying out an effective investigation to determine the culpability of accused respondent.

Even if there are number of deficiencies and short comings from the investigating and prosecuting agencies the Court has to be to circumspect in evaluating the evidence¹²⁸. It would not be right upon acquitting the accused solely on account of defects in investigation and the principle of proof beyond reasonable doubt.

2.4. CONCLUSION

The Object of Criminal law is to protect the rights of individuals and to provide a peaceful atmosphere in the society. In pursuit of this objectives state prescribe certain rules of conduct, sanctions for violation of certain acts, and some machineries for enforcement of these rights. Police, prosecutors and judges are the most important agencies of the Criminal justice system.

Police plays a significant role in dispensation of criminal justice. The Justice Delivery depends upon fair investigation conducted by the police. Like police officers, prosecutions also have an important role as they represent the society at large. As the final interpreter of law, the judges also play a vital role in the justice delivery system. The major problems faced by the criminal justice administration are low rate of conviction and huge pendency of criminal

¹²⁷. State of Gujrat v. Kishanbai, 2014 (5)SCC 108.

¹²⁸. State of Gujarat v. Kishan Bai 2014 (5) SCC 108.

cases. These 3 agencies are equally accused for the failure of criminal justice in India.

The standard of investigation in India is not up to the mark. Due to the advancement of Science and technology there is emergence of new types of crime hence the traditional tools of investigation became out dated and inadequate. The quality of criminal trial mostly depends upon the caliber of prosecutors there for many faulty acquittals are not only due to poor investigation but also to the result of poor prosecution.

The edifice of our criminal justice system depends on the cooperation and coordination among the police who conduct the investigation, the prosecution who assist the court to determine the truth, the judge who gives the final verdict and determine accused is guilty or not¹²⁹.

This is the time when applications of science and technology is more in use for the cause of administration of justice, the courts are also giving more and more reliance to scientific evidence. As like the scientific method of investigation which the investigating agencies follow in criminal cases, for the purpose of fair justice prosecutors and judges also should have scientific knowledge about materials submitted by the investigating agencies. The success of criminal justice system depends mainly on effective investigation, well qualified, trained, fair and dedicated prosecutors impartial and independent judges.

¹²⁹. PROF. R. DEB IPS, POLICE AND LAW ENFORCEMENT 260 (S C Sarkar & sons Private Ltd 1988).

This chapter conclude with the following annotation of Justice Gajendra Gadkar. Justice Gajendra Gadkar made the following annotation in the 58th report of law commission of India¹³⁰ which is quite worth mentioning:

“We have sound judicial tradition and a rational and systematic judicial process. There is no doubt that these factors have conferred great advantage on the country. An independent and efficient judiciary, a unified judicial system and a modernized procedure use though legacies of the pre- independence era; have always been cherished by us. The judicial system has earned in the respect so earned is well deserved”

.....❁❁.....

¹³⁰. Justice Gajendra Gadkar, *Law Commission of India 58th Report on Structure and Jurisdiction of Higher judiciary*, 1974.

CHAPTER III

CRIMINAL INVESTIGATION IN INDIA – AN OVERVIEW

*“Nothing has such power to broaden the mind as the
ability to investigate systematically and truly all that
comes under the observation in life”.*

-Marcus Aurelius

3.1 INTRODUCTION

Criminal investigation is the most important and crucial aspect of Criminal justice system. Justice cannot be achieved unless there is an efficient, fair and impartial investigation.

The process of investigation and crime detection followed in our Country is based on the adversarial system of common law, laid down by the British. In such an adversarial system of Criminal trial, it is the prerogative of the State to prosecute a person accused of an offence. It is the duty of investigating officer to place all relevant materials to prosecution. When the prosecution brings every essential evidence against the accused and if there is prima facie proof, then only the court examine the defence. Hence, the success of prosecution is considered to be the success of investigation. Today the criminals are using modern and scientific methods for committing crime without leaving any traces, hence investigating officers face many difficulties

in the collection of evidences due to lack of scientific knowledge and experiences. It is a fact that, in India still we follow the conventional method of investigation which is based on eye witness evidence, even though the advent of science and technology has brought to us new ways and means to aid the investigation and detection of crime. As a consequence of which the conviction rate in India is very low as compared to other countries.

3.2 INVESTIGATION - MEANING AND SCOPE

To investigate means to examine or to enquire in to the causes and consequences of certain happenings. The aim of investigation being discovery of truth, it should not be illegal or unethical. Improper investigation may lead to wrongful conviction or wrongful acquittal. Hence, Investigating officers are considered as the guardian of the liberty of innocent persons.

In *Jamuna Chaudhary v. State of Bihar*¹³¹ Supreme Court held that object of investigation is not merely to enable the court to record conviction but to bring out the unvarnished truth. This view was also upheld in *Shreemad Jagadguru v. State of Karnataka*¹³² and the court held that, “The aim of the investigation is to search for truth and bring the offender to book”. In *BMW Hit and Run*¹³³ case Honourable Court has taken the view that “The essence of Police investigation is skillful inquiry and collection of material evidence, by which, truth can be ascertained and the offender may be brought before the

¹³¹. *Jamuna Chaudhary v. State of Bihar*, AIR 1974 SC 1822.

¹³². *Shreemad Jagadguru v. State of Karnataka*, 2014 SCC OnLine115 Kar 5639 at para 39. Constitutional validity of section 53A of Cr P C was challenged in this case.

¹³³. *State v. Sanjeev Nanda*, (2012) 8SCC 450.

society”. Court also emphasized that “Investigation is basically an art of unearthing the truth for the purpose of successful detection and prosecution”¹³⁴. Investigation should not only be fair but should also be seen to be fair in order to instill confidence in the mind of victim of crime and general public¹³⁵. Whatever be the nature criminal investigation whether adversarial or inquisitorial, aim of crime investigation should be the search for truth, in such a way to give justice to the accused as well to the victim.

3.3 DEFINITION OF INVESTIGATION

According to Paul B Weston, “Criminal investigation is a lawful search for people and things useful in reconstructing the circumstances of an illegal act or omissions and mental state accompanying it. It is a probing from the known to unknown, backward in time, and its goal is to determine truth as far as it can be discovered in any post factum”¹³⁶. It is an applied science that involves study of facts, used to identify, locate and prove the guilt of criminal¹³⁷. Richard H Wood held that, “Primary function of Criminal investigation is to gather information, determine the validity of this information, identify and locate perpetrators of crime and provide evidence of his guilt for a court of law. Inherent in this function is a responsibility to protect the innocent¹³⁸. Purpose of investigation is to establish that, in fact a crime was

¹³⁴. State v. Sanjeev Nanda, (2012) 8SCC 450 at para 283.

¹³⁵. Rubabbuddin Sheikh v. State of Gujarat, (2007) 2 GLR 1829.

¹³⁶. PAUL B WESTON, CRIMINAL INVESTIGATION BASIC PERSPECTIVE 1 (Prentice Hall 2008).

¹³⁷. CHARLES E O’HARA, FUNDAMENTALS OF CRIMINAL INVESTIGATION 5 (Charles C Thomas Publisher, 1975).

¹³⁸. RICHARD H WOOD, INTRODUCTION TO CRIMINAL INVESTIGATION (Addison Wesley Publication Company 1975).

committed, to identify and apprehend the suspect, to recover stolen property, to assist the State in prosecuting the party charged with the offence¹³⁹.

The Code of Criminal Procedure, 1973 defines investigation “includes all the proceedings under this Code for the collection of evidence conducted by a police officer or by any person (other than a Magistrate) who is authorized by a Magistrate in this behalf”¹⁴⁰. Thus any step taken by a police officer or a person authorized by a magistrate towards collection of evidence in regard to an offence would fall within the definition of investigation as per the Code¹⁴¹. By keeping this definition, the Honourable apex Court in *H N Rishbud and Inder Singh v. The State of Delhi*¹⁴² held that investigation consists of the following steps.

- 1) Proceeding to the spot.
- 2) Ascertainment of the facts and circumstances of the case.
- 3) Discovery and arrest of the suspected offender
- 4) Collection of evidence relating to the commission of offence which may consist of (a) examination of various persons (including the accused) and reduction of their statement into writing, if the officer thinks fit, (b)

¹³⁹ · CHARLES R. SWANSON, JR., NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 2 (Goodyear Publishing Company 1977)

¹⁴⁰ The Code of Criminal Procedure, 1973, S 2(h), Acts of Parliament (India).

¹⁴¹ Directorate of Enforcement v. Deepak Mahajan, 1994 Cri.LJ 2269.

¹⁴² H. N. Rishbud and Inder Singh v. The State of Delhi, A.I.R.1955 Cri.LJ 526. The case against these appellants are that they along with some others entered into criminal conspiracies to obtain for themselves or for others iron and steel materials in the name of certain bogus firms and that they actually obtained quota certificates, on the strength of which some of the members of the conspiracy took delivery of quantities of iron and steel from the stock- holders of these articles. The charges against them were under S 120B, S 420 of Indian Penal Code and S 7 of the Essential Supplies (Temporary Powers) Act, 1946.

reach of the places or seizure of things considered necessary for the investigation and to be produced at the trial

- 5) And formation of opinion as to whether on the material collected there is a case to place the accused before the Magistrate for trial and if so taking the necessary steps for the same by the filing of a charge sheet under section 173.

These steps reveals that the investigation should commence with the prompt reaching to the crime scene to determine the facts and circumstances followed by arrest of suspected offender¹⁴³. In short, it means as part of investigation, the investigating officer has to collect all the evidences by examining various persons including the accused and take their statements and conduct search and seizure for material evidence, finally submit charge sheet under section 173 of Cr P C.

Whatever be the definition of investigation, the ultimate object of which is to search for truth as Malimath committee observed, “For the common man truth and justice are synonymous so when truth fails, justice fails”¹⁴⁴.

In order to effectively conduct or perform criminal investigative functions, investigating officer must understand the basic purpose of investigation and the result of his investigation and must be able to establish the crime beyond reasonable doubt, Opportunity to commit crime, Corpus

¹⁴³. The word “facts and circumstances and collection of evidence” are very significant which shows that he must study the facts and collect evidence as they exist and must confirm whether it go for or against prosecution.

¹⁴⁴. Dr Justice V S Malimath, Report on Committee On Reforms of Criminal Justice System, Government Of India, Ministry Of Home Affairs, 2003 at para 2.16.

delict, Motive and Modus operandi¹⁴⁵. Modern day criminal investigation commonly employs many modern scientific techniques collectively known as Forensic Science.

3.4 PROCEDURE OF INVESTIGATION UNDER THE CODE OF CRIMINAL PROCEDURE, 1973

The Code of Criminal procedure is the main legislation dealing with the conventional crime and criminal Investigation in India. Though we have a number of statutory laws which deals with powers of different investigative agencies, in this research work the researcher is going through the investigation as stated in the code of criminal procedure 1973 and changes needed in the criminal investigation in respect of conventional crimes. Chapter X11 of the Code deals with the procedures to be observed while conducting crime investigation¹⁴⁶.

For the purpose of investigation offences are classified in to cognizable¹⁴⁷ and non-cognizable offences¹⁴⁸. Section 154 Cr P C is a relevant provision regarding registration of a cognizable case, it regulate the manner of recording First Information¹⁴⁹. Any citizen can lodge a first information report or file a complaint and set the criminal law in motion and his locus standi

¹⁴⁵. B.R.SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 4 (Universal Law Publishing company 2006).

¹⁴⁶. See, The Code of Criminal Procedure, 1973, Section 154-173, Acts of Parliament (India).

¹⁴⁷. See, The Code of Criminal Procedure, 1973, Section 2(c), Acts of Parliament (India). Cognizable offence means an offence for which a police officer may in accordance with the first schedule or under any law for the time being in force, arrest without warrant.

¹⁴⁸. See, The Code of Criminal Procedure, 1973, Section 2(l), Acts of Parliament (India). An offence for which the police officer have no authority to arrest without warrant.

¹⁴⁹. The Code of Criminal Procedure, 1973, Section 154, Acts of Parliament (India).

cannot be questioned¹⁵⁰. The primary purpose of the FIR is of two fold i.e., from the perspective of the informant it is to set criminal law in motion whereas from the perspective of the investigating agency it is to acquire information about the alleged criminal activity so that appropriate measures can be taken for tracing out and bringing to book the guilty party. The objective of requiring reporting a crime promptly is to gather early information regarding circumstance, name of culprit, their involvement and also the eye witness present at the scene of occurrence. The report doesn't have to be exhaustive, but the informant has to share all the information known to them. Credibility of information is not prerequisite for registering the information. The question whether a police officer has to conduct preliminary enquiry before registration of FIR was decided in *Lalita Kumari v. Govt. of U.P. & Ors*¹⁵¹. Registration of FIR is mandatory under Section 154 of the Code, if the information discloses commission of a cognizable offence and no preliminary inquiry is permissible in such a situation. The legislative intent is therefore quite clear to ensure that every cognizable offence is promptly investigated in accordance with law. Compulsory registration ensures transparency in criminal justice system.

Though F.I.R is a valuable document that throws much light on the crime, it is not a substantive piece of evidence. It can be used to corroborate¹⁵² or contradict¹⁵³ the informant when he comes as a witness at the time of trial¹⁵⁴.

¹⁵⁰. Sheonadan Paswan v. state of Bihar, (1987) 1 SCC 268.

¹⁵¹. *Lalita Kumari v. Govt. of U.P. & Ors*, 2013 (4) KLT 632 (SC).

¹⁵². Indian Evidence Act, 1872, Sec 157, Acts of Parliament (India) –“Former statement of witness may be proved to corroborate the later testimony as to same fact.”

¹⁵³. Indian Evidence Act, 1872, Sec 145, Acts of Parliament (India). “Cross-examination as to previous statements in writing.—A witness may be cross-examined as to previous

With regard to the delay in lodging of F.I.R, it was held to be violation of constitutional guarantee of speedy investigation which is guaranteed by article 21 of the constitution¹⁵⁵ but at the same time Hon'ble court observed that it is not fatal if delay is properly explained¹⁵⁶.

In order to improve quality of investigation, prompt and effective investigation and to secure a better conviction a Standard Operating Procedure (SOP) was prescribed for investigation of offences against women¹⁵⁷. As per this standing orders in cases of investigation of offences against women FIR shall be promptly registered on receipt of complaint and no technicality be allowed to come in the way, and must be recorded in accordance with the provisions of Sec 154 Cr P C drawn up with greatest care and caution, incorporating all material information/ facts directly connected with the crime or likely to form important piece of evidence. The victim can lodge the FIR in any police station in the state and the case can be subsequently transferred to the concerned station having jurisdiction for investigation. Further, a woman police officer or any officer shall record the information of offences given by women victims as per the provision of Sec.154 Cr P C information shall be

statements made by him in writing or reduced into writing, and relevant to matters in question, without such writing being shown to him, or being proved; but, if it is intended to contradict him by the writing, his attention must, before the writing can be proved, be called to those parts of it which are to be used for the purpose of contradicting him.”

¹⁵⁴ Baldev Singh v. State of Punjab, AIR 1996 SC 372. F.I.R is not a substantive piece of evidence, it is only relevant in judging the veracity of prosecution case and the value to be attached to it depends on the facts of each case.

¹⁵⁵ Vakil Prasad v. State of Bihar, 2009 Cri.LJ 1731. In this case investigation had been delayed for 17 years, without any explanation.

¹⁵⁶ Dilawar Singh v. State of Delhi, 2007 Cri.LJ 4709 SC.

¹⁵⁷ Standard Operating Procedure (SOP) for investigation of crime against women, CID CB CIRCULAR NO 14700/CID SRW , 17/04/2018

recorded either in the residence or at a convenient place in presence of an interpreter or a special educator¹⁵⁸.

In India investigation is considered to be the prerogative of the police i.e, the executive arm of the state. They can investigate any cognizable case without the order of a magistrate within the limit of its jurisdiction¹⁵⁹. They enjoy wide discretion in prosecuting the offender and can conduct investigation, and decide whether to prosecute an offender, depending on the availability of the evidences. The magistrate has only limited control over the power of police to investigate cognizable offences. He can intervene and either direct investigation, or in the alternative, himself proceed or to depute a magistrate subordinate to him to enquire into the case only when the police themselves decide not to investigate such an offence¹⁶⁰.

But section 156(3) does not empower a magistrate to stop investigation undertaken by the police¹⁶¹. In *King Emperor v. Khwaja Nazir*¹⁶², Privy Council had observed that the functions of judiciary and police are

¹⁵⁸. In general in order to register information as FIR it has to strictly comply the ingredients of section 154 as mentioned above. But as per the standing instruction strict compliance of S. 154 not mandatory. Further as per section 154 information shall be recorded in concerned police station not on the residence of victim.

¹⁵⁹. The Code of Criminal Procedure, 1973, Section 156, Acts of Parliament (India). Which states "Police officer's power to investigate cognizable case".

(1) Any officer in charge of a police station may, without the order of a Magistrate, investigate any cognizable case which a Court having jurisdiction over the local area within the limits of such station would have power to inquire into or try under the provisions of Chapter XIII.

(2) No proceeding of a police officer in any such case shall at any stage be called in question on the ground that the case was one which such officer was not empowered under this section to investigate.

¹⁶⁰. The Code of Criminal Procedure, 1973, Section 156(3), Acts of Parliament (India). Any Magistrate empowered under section 190 may order such an investigation as mentioned in section 156(1) and (2)

¹⁶¹. *Prakash Singh Badal v. State of Punjab*, (2007) I SCC 1.

¹⁶². *King Emperor v. Khwaja Nazir*, (1945) 47 BOM LR 245.

complementary and not overlapping and the amalgamation of personal liberty with apt observance of law and order can be obtained by leaving each authority to perform its own function. This view has also been approved and shared by the Supreme Court in number of cases¹⁶³. Under sections 154 and 156 of the Code, the police authorities have a statutory right to investigate into a cognizable offence without requiring any sanction from a judicial authority and the High Court has no inherent power under section 482 to interfere with the exercise of that statutory power¹⁶⁴. With regard to the wide powers of to police to conduct investigation and their corresponding duties as investigating officer Hon'ble apex Court in *State of Bihar v. P.P Sharma*¹⁶⁵ held that the duty of the investigating officer is to identify the facts from the half-truth or garbled version, in-order to connect and arrive at the actual chain of events . Investigation is a long drawn and tedious process. Thus, in-order to enable the success of an investigation, enough power is given to the police officer investigating a matter. A great degree of discretion is given to exercise those powers, in order to smooth the investigative process.

Even though, High Court doesn't have the power or jurisdiction to transfer an investigation from one Police Station to another but the Code of Criminal procedure has conferred power on the statutory authorities to direct

¹⁶³. *State of W.B. v. S N Basak*, A.I.R, 1963 SC.447, *H.N. Rishbud v. State of Delhi* A.I.R. 1955 SC.196, *Abhinandan Jha v. Dinesh Mishra*, A.I.R. 1968, SC.117.

¹⁶⁴. *Nirmaljith Singh Hoon v. State of W.B.*, (1973)3 SCC753.

¹⁶⁵. *State of Bihar v. P.P Sharma*, 991 AIR 1260, 1991 SCR (2) 1.

transfer of an investigation from one Police Station to another in the event it is found that they do not have any jurisdiction in the matter¹⁶⁶.

In *Manohar Lal Sharma v. Principal Secretary and others*¹⁶⁷ Apex Court held that, the Court can intervene in investigation when the role performed by the investigating agency jeopardise the rights of the citizens. A writ of mandamus can be issued when it is exercised in malafide manner or Investigation by the police is found to be not bonafide or tainted with animosity or to protect the personal and /or property right of the citizen. In *Nepal Krishna's case*¹⁶⁸ it was held that court cannot prescribe any particular manner for conducting investigation but it can certainly say that the investigation has not been done in a fair and transparent manner, or can redirect an investigation / further investigation. Statutory right of police to carry out investigation cannot be interfered by the courts under sec 401¹⁶⁹ or 402¹⁷⁰ of Cr P C. In short, no proceedings of police officer in any such case shall be called in question on the ground that the case is one in which the officer was not empowered under section 156 to investigate.

As regards the procedure and importance of investigation in *state v. Sanjeev Nanda case*¹⁷¹, Hon'ble Supreme Court held that "Police and other investigating agencies are at the heart of the criminal justice system of India". The investigation by the police is fundamental to the Criminal Justice System.

¹⁶⁶ Naresh Kavarchand Khatri v. State of Gujarat and another, A.I.R.2008 SC 2180.

¹⁶⁷ Manohar Lal Sharma v. Principal Secretary and others, (2014) 2 SCC 532.

¹⁶⁸ Nepal Krishan v. State of W.B, 2015 (1) KLT SN 9 (C.No 12) Cal.

¹⁶⁹ The Code of Criminal Procedure, 1973, Section 401, Acts of Parliament (India).

¹⁷⁰ The Code of Criminal Procedure, 1973, Section 402, Acts of Parliament (India).

¹⁷¹ State v. Sanjeev Nanda, (2012) 8SCC 450 at para 283.

When the police are intimated about commission of an offence, it is their responsibility to investigate the matter to find out who is the culprit, facts and circumstances relevant to the crime and to collect evidence (oral or circumstantial) which are necessary to prove the case before the court. The outcome of the case completely depends on the work of the investigating officer. Therefore, a heavy responsibility devolves on them of seeing that innocent persons are not charged on an irresponsible and false implication.¹⁷²

As per the Code of Criminal procedure, there is no exact rule regarding the procedure of investigation. When a police officer has reasonable suspicion regarding the commission of a cognizable offence, they must immediately send a report of the circumstance creating the suspicion to a Magistrate having power to take cognizance of such offence upon a police report. This provision is designed to keep the Magistrate to be informed of the investigation of such cognizable offences, so as to be able to control the investigation and provide appropriate direction under section 159, whenever necessary.

As a part of investigation, arrest and seizure are made which is dealt under section 41-44 and section 103 of the Code respectively. The procedure of investigation varies from case to case and no elaborate procedures are dealt under Code of Criminal Procedure regarding procedures of investigation or how evidences are collected.

¹⁷². R P Kapur v. State of Punjab, AIR 1960 SC 8669.

Investigation is primarily meant for the collection of evidence and to find out the truth. Hence collection of evidence is considered to be the heart and soul of justice delivery system. Physical evidences are the basis for scientific crime investigation, which provide potential evidence to an investigator. Hence all efforts should be done to collect maximum evidence from this spot. In general, evidence tells a story and helps an investigator in re-creating the crime scene and establishing the sequence of events at spot¹⁷³. It includes all available form of evidence including oral¹⁷⁴, documentary¹⁷⁵, physical¹⁷⁶, and circumstantial¹⁷⁷. Physical evidences which are the basis for crime scene investigation will provide potential evidence to an investigator¹⁷⁸. Unfortunately Code of criminal procedure is silent regarding the procedure of crime scene investigation. In the absence of specific procedure of Crime scene investigation in the Code Investigating officers, prosecutors and lawyers and even judges are totally ignorant of what all procedures to be done by investigating officers in crime scene, similarly we have lack of knowledge

¹⁷³. Mukesh Sharma, *Uniqueness as a concept at the scene of crime*, XXXIV IJCFS 102 (2015).

¹⁷⁴. Indian Evidence Act, 1872, Sec 59-60, Acts of Parliament (India) - Oral evidence means all statements which the Court permits or requires to be made before it by witnesses, in relation to matters of facts under inquiry.

¹⁷⁵. Indian Evidence Act, 1872, Sec 61-66, Acts of Parliament (India) - Proof of content of document. After the information technology amendment act 2005, it gives a detailed explanation to what constitute documentary evidence.

¹⁷⁶. It is the evidence having physical or material quality. It encompasses all objects living or in animate solid, liquid, or gas found in crime scene.

¹⁷⁷. Indian Evidence Act, 1872, Sec 3, Acts of Parliament (India). Circumstantial evidence means evidence of circumstances as opposed to direct evidence. It is the evidence of the surrounding circumstances or the accumulated circumstances and if put together point to one direction namely guilt of accused person.

¹⁷⁸. Physical evidence may be defined as articles and materials which are found in connection with an investigation and which aid in establishing the identity of the perpetrator of the circumstances under which the crime was committed or which in general assist in the discovery of facts.

about how physical evidences are collected, how it is preserved and how chain of custody to be maintained, transported to forensic science laboratories. As per the definition of investigation it is clear that investigation includes all the procedures for collection of evidence. Here, the term all the procedures mean it depends on the facts and circumstances of each case. Presently, investigating agencies use number of scientific techniques for conducting criminal investigation. Even though numbers of amendments were made in Cr P C it is also silent regarding the aspects of scientific investigation. Hence an amendment should be needed in the Code of Criminal procedure with respect to Crime scene and scientific investigation. It should be read with investigation procedure code.

During the course of investigation Police officer has power to interrogate any person supposed to be acquainted with the facts and circumstances of each case¹⁷⁹. It is a common practice that police officers often can use third degree methods for extracting statements. Constitution put restriction on the police powers as they shall not use any compulsion, threat inducement or promises as it is violative of Article 20(3) of Indian Constitution¹⁸⁰. It also guarantees right to silence under section 161 (2).

Though the foundation of criminal justice system is the investigation by police but Criminal justice system does not trust the police. It specifically says that section 161 shall not be signed by person making it. The provision

¹⁷⁹. The Code of Criminal Procedure, 1973, Section 161, Acts of Parliament (India).

¹⁸⁰. INDIA CONST, art 20, cl 3. - "No person accused of an offence shall be compelled to be a witness against himself". It is a right available to accused from third degree.

intended as a statutory safeguard against improper police practices and contravention of the provision will be considered as impairing the value of evidence given by the person making and signing a statement before the police during investigation of a crime¹⁸¹. But the statement under section 161 can be used to contradict the maker of the statement in accordance with section 145 of Indian Evidence Act¹⁸² can be used to collect discovery of incriminating materials under section 27 of Indian Evidence Act¹⁸³.

After completion of investigation, every investigating officer shall submit the report of investigation to Magistrate without any unreasonable delay¹⁸⁴. The basic requirement of a fair trial is to give notice of accusation to the accused on precise manner, in order to prepare his defence.

In *V C Sukla v. State*¹⁸⁵ it was held that charge serves the purpose of notice or intimation to the accused, drawn upon according to specific language of law, giving clear and unambiguous or precise notice of the nature of accusation that the accused is called upon to meet in the course of a trial.

The purpose of filing charge sheet is to enable the court concerned, to apply its mind as to whether cognizance of the offence thereupon should be

¹⁸¹. Under Indian Evidence Act confession given to Police officer is not valid.

¹⁸². The Code of Criminal Procedure, 1973, Section 145, Acts of Parliament (India) - Cross-examination as to previous statements in writing; - A witness may be cross-examined as to previous statements made by him in writing or reduced into writing, and relevant to matters in question, without such writing being shown to him, or being proved; but, if it is intended to contradict him by the writing, his attention must, before the writing can be proved, be called to those parts of it which are to be used for the purpose of contradicting him.

¹⁸³. Indian Evidence Act, 1872, Sec 27, Acts of Parliament (India) - How much of information received from accused may be proved.—Provided that, when any fact is proved to as discovered in consequence of information received from a person accused of any offence, in the custody of a police officer, so much of such information, whether it amounts to a confession or not, as relates distinctly to the fact thereby discovered, may be proved.

¹⁸⁴. The Code of Criminal Procedure, 1973, Section 173, Acts of Parliament (India).

¹⁸⁵. *V C Sukla v. State*, 1980 Supp SCC 92.

taken or not. Charge is the foundation of accusation and every care must be taken to see that it is not only properly framed but evidence is only tendered with respect to matters put in the charge and no other matters¹⁸⁶. Charge sheet should contain all details required and should be submitted with all documents and statements required in sub section (5)¹⁸⁷. It is of utmost importance that that investigation into criminal offence must always be free from any objectionable features or infirmities which may ultimately lead to the grievance of accused that the work of investigation is carried on unfairly or with ulterior motive. While framing the charge the magistrate has to hand over to the accused copy of charge sheet along with all documents or extract except those which are specifically excluded as per the report of police¹⁸⁸. Whether content of a memory card/pen drive being electronic record as predicted in section 2(1)(t) of the Information Technology Act, 2000 would thereby qualify as a document within the meaning of section 3 of the Indian Evidence Act, 1872 and section sec 29 of Indian Penal Code. The question whether it is obligatory to furnish a cloned copy of the content of such memory card /pen drive to the accused has been discussed and decided by Honourable Supreme court in

¹⁸⁶. Ramakrishna Sawalaram Redkar v. State of Maharashtra, 1980 Cri.LJ 254.

¹⁸⁷. The Code of Criminal Procedure, 1973, Section 173(5), Acts of Parliament (India) - which states that police officer, shall forward to the Magistrate along with the report all documents or relevant extract thereof on which the prosecution proposes to rely other than those already sent to Magistrate during investigation.

¹⁸⁸. The Code of Criminal Procedure, 1973, Section 173(6), Acts of Parliament (India) - which states that if the police officer is of opinion that any part of such statement is not relevant to the subject matter of the proceedings or that its disclosure to the accused is not essential in the interest of justice and is expedient in the public interest, he shall indicate that part of such statement and append a note requesting the magistrate to exclude that part from the copies to be granted to the accused and stating his reasons for making such request. Sect.207 of the Code of Criminal Procedure 1973 which also states that Magistrate shall without delay furnish to the accused copy of all other document and relevant extracts which has been submitted under section 173(5).

*P. Gopalkrishnan @ Dileep v. State of Kerala and Anr*¹⁸⁹. In this case after an elaborate discussion court concluded that though the content card /pen drive being electronic record must be regarded as a document. If the prosecution is relying on the same, accused must be given a cloned copy thereof to enable him to present an effective defence during the trial. However in cases involving issues such as privacy of the complainant the court may be justified in providing only inspection thereof to the accused and his lawyer or expert presenting effective defence during the trial. The lower court may issue suitable directions to balance the interest of both sides. Decision of court is admirable that though the content of pen drive/memory card is document but by taking into account the privacy of the victim court directed the lower court that all care must be taken that they do not carry any device, which has capability of copying the content of memory card.

If any information or material subsequently collected /recovered after filing of charge sheet, investigating officer need not register a fresh FIR, instead he is empowered to make further investigation, normally with the leave of the court which is the gist of sub-section (8) of Section 173 Cr P C¹⁹⁰

¹⁸⁹. *P. Gopalkrishnan @ Dileep v. State of Kerala and Anr*, 2019 (4) KLT 853 (SC).

¹⁹⁰. The Code of Criminal Procedure, 1973, Section 173(8), Acts of Parliament (India) - Nothing in this section shall be deemed to preclude further investigation in respect of an offence after a report under sub- section (2) has been forwarded to the Magistrate and, where upon such investigation, the officer in charge of the police station obtains further evidence, oral or documentary, he shall forward to the Magistrate a further report or reports regarding such evidence in the form prescribed; and the provisions of sub- sections (2) to (6) shall, as far as may be, apply in relation to such report or reports as they apply in relation to a report forwarded under sub- section.

In *Sonalal Soni v. State of Chhattisgarh*¹⁹¹, where it was held that, in the cases of defective investigation, fresh investigation has been decided where it is disclosure of the fresh facts, overlooking of some important aspects during investigation, unfair investigation, overlooking collection of important, relevant and material evidences by the investigating officer either deliberately or mistakenly or knowingly. Under section 173 further investigations is permissible, however, reinvestigation is prohibited¹⁹².

The question whether investigating officer has to consult with Public Prosecutor for submission of amended Charge Sheet was discussed In *R. Sarala v. T.S Velu and Ors*¹⁹³. Honourable Court had dealt with the various aspects of investigation from section 154 to Section 168 of the Code and concluded that at no stage is the investigating officer bound to act upon the opinion of the Public Prosecutor or any authority. The only authority on whose opinion/advice the officer may act upon is a Superior Police officer in rank. Referring to its earlier decision in *H N Rishbud and Inder Singh v. The State of Delhi*¹⁹⁴ the court held that the formation of the opinion, on whether there is a case to place the accused on trial, is solely that of the office in charge of the police station. Court referred the wordings of Lord Denning, in *R. v. Metropolitan Police Commissioner*¹⁹⁵

¹⁹¹ *Sonalal Soni v. State of Chhattisgarh*, 2005 Cri L J 4461.

¹⁹² Carrying out a further investigation even after filing of the charge-sheet is a statutory right of the police. Reinvestigation without prior permission is prohibited.

¹⁹³ *R. Sarala v. T.S Velu and Ors*, 2000 (2) KLT SC SN 34 (C. No. 40).

¹⁹⁴ *H N Rishbud and Inder Singh v. The State of Delhi* AIR 1955 SC 196, 1955 KLT OnLine 1014 (SC).

¹⁹⁵ *R. v. Metropolitan Police Commissioner*, 1968 (1) All.E.R. 763.

"I have no hesitation; however, in holding that, like every constable in the land, he should, and is, independent of the executive. He is not subject to the orders of the Secretary of State. I hold it to be the duty of the Commissioner of Police, as it is of every chief constable, to enforce the law of the land. He must take steps so to post his men that crimes may be detected; and that honest citizens may go about their affairs in peace. He must decide whether or not suspected persons are to be prosecuted; and, if need be, bring the prosecution or see that it is brought; but in all these things he is not the servant of anyone, save of the law itself. No Minister of the Crown can tell him that he must, or must not, keep observation on this place or that; or that he must, or must not, prosecute this man or that one. Nor can any police authority tell him so. The responsibility for law enforcement lies on him. He is answerable to the law and to the law alone."

The Court reached the conclusion that there is no need to consult with the Public Prosecutor for submission of the amended charge sheet as investigation is purely vest with investigating officer.

Whatever be the nature of legal system whether it is accusatorial or inquisitorial success of criminal justice system depends on investigation by police. It should be fair, reasonable, proper, methodical, and legal to accused as well as to victim. Even though there is no hard and fast rule for conducting investigation, the approach, method and handling must necessarily vary according to nature and circumstances of the case.

3.5 MISUSE OF INVESTIGATIVE POWERS BY POLICE

Among the four pillars of the criminal justice system police plays a crucial role and its failure may often lead to break down of criminal justice system. As the object of investigation is to collect evidence they have to investigate fairly and thoroughly all evidence, whether it may be favor or against the accused.

Honourable Supreme Court in number of cases pointed out that the most important reason for the high rate of acquittal rate is incompetency of investigating officers. In *Sonalal soni v. state of Chattisgarh case*¹⁹⁶ Court highlighted that due to unfair investigation by incompetent investigating officers, large number of cases resulted in acquittals and the rate of conviction by the Indian Courts is less than 8%, whereas in Singapore, the rate of conviction is more than 90% even the Criminal Laws in both these countries are almost similar.

Successful prosecution of criminal case depends on thorough and careful search for truth and collection of evidence produced by the investigating agency. In *Sonalal soni v. state of Chattisgarh case*¹⁹⁷ police instead of collecting the cogent evidence like video cassette started harassing the family members of the petitioner by registering case against them. Hon'ble Court held

¹⁹⁶. *Sonalal Soni v. State of Chhattisgarh*, 2005 Cri.LJ 4461. The case of the petitioner is that after killing of his son, Akhilesh Singh and his associates, who were present on the spot, with a view to suppress the evidence created anarchy on the spot and compelled the shopkeepers of the shops situated around the place of incident, to close the shops and to ran away. Although these persons were eyewitnesses to the incident of murder of Somesh Soni, but their statements have not been recorded.

¹⁹⁷. *Sonalal Soni v. State of Chhattisgarh*, 2005 Cri.LJ 4461.

that investigation is conducted keeping them in dark, without informing them about the progress of investigation, which is not fair and detrimental to them. Court also observed that “this case end in acquittal due to the factors which clearly reflect the competency of the investigating agency, in conducting investigation in a scientific manner, not collecting the clinching circumstantial evidence and wholly depending upon the evidence of eyewitnesses which is always a very dangerous thing.

This case is clear example of incompetency inefficiency and misuse of investigative powers by investigating officers. In developed countries victim have an active role in investigation. But in India victim is always a victim her role is limited to the role of a mere prosecution witness when she is called upon during trial. This situation can be overcome if investigating agency adopts scientific or more sophisticated methods for conducting investigation, rather than giving more importance to victim’s statement.

*Kashmiri Devi v. Delhi Administration & Another*¹⁹⁸ is also an unfortunate case which shook the credibility of police investigation and undermines the faith of common man in Police officers who are supposed to protect life and liberty of citizens and maintain law and order. In this case there had been serious allegations of murder by torture against the police and further about the haphazard manner in which accused police officers were investigated with a view to shield the guilty members of the Delhi Police. The Investigating officers had changed the penal section from 302 IPC to 304 IPC within hours

¹⁹⁸. Kashmiri Devi v. Delhi Administration & Anr, AIR 1988 1323.

of the registration of the case on the ground that they were inadequate. This apparent change was made even before the post mortem report could come out. Apex Court held that police had acted with prejudice and mala fide intention to shield the actual offenders and the examination of the case had not been done in a legitimate and impartial manner. Court held that, in interest of justice it was important to initiate fresh investigation made by an independent authority to uncover the truth.

In this case accused was charged for murder of 3 innocent persons including 2 young children. Investigating officer had prepared the site plan before the registration of the case and without recording statement of witnesses under section 161. Due to the negligence and misuse of investigating officer the case end in acquittal because of the presumption of innocence which is the basic human right doctrine.

Court also asserted that there is indeed a big difference between accused “may have committed the offence” and “must have committed the offence” and this gap must be reconciled by the prosecution by presenting before the court, reliable and cogent evidence. *Golam Sarwar and others v. State of West Bengal*¹⁹⁹ was a best example of careless and perfunctory investigation. In this case, 11 persons were murdered. Three investigating officers consecutively conducted the investigation but still, neither the statements of all the witnesses were recorded nor were any relevant articles such as weapons used in the

¹⁹⁹. *Golam Sarwar and others v. State of West Bengal*, CRA 682 of 2010 (Calcutta High Court).

assault seized. In spite of all the short comings Sessions Court, by its judgment, has convicted 44 of the accused under Section 302 read with Section 149 of the I.P.C. But on appeal apex court acquitted the accused and highlighted that Investigation conducted in this case was abysmal (extremely bad) reflecting an alarming State of affairs where the police did their utmost to ensure that the perpetrator of the crime went scot free.

Court in this case pointed out a different view that merely due to lacuna in the investigation, shortcomings on the part of the I.O. cannot be a ground for acquittal. Moreover, despite the negligence on the part of the investigating agency, the court is obliged to scrutinize the prosecution evidence beyond the scope of such lapses to examine whether the evidence is reliable or not and if such lapses affect the discovery of the truth. Court held that in an accusatorial system judges have a passive role and the complete trial procedure is left to the discretion of the prosecuting agency, however Judges have to be an active instrument in the discovery of the truth.

Analysis of the above cases shows that it is the duty of prosecution to prove the case beyond reasonable doubt. In order to prove the case beyond reasonable doubt investigating agency has to place all relevant and cogent evidence to the prosecution. Even if there delay or defects in investigation that can be cured but there is any negligence or intentional omission court has to scrutinize the evidences.

Criminal law amendment 2013 has inserted a new section namely Section 166 A in the Indian Penal Code, 1860 that deals with, “public servant disobeying direction under law”²⁰⁰. This provision is a welcome step and if widely interpreted can ensure fair investigation to a large extent. Section 166 A(c) make it punishable offence if any public servant failed to record any information given to him shall be punished with rigorous imprisonment for a term which shall not be less than six months but which may extend to two years, and shall also be liable to fine²⁰¹.

Scope of this particular sub-section (c) of Section 166 A is required to be extended so as to cover cases of all victims of personal violence crimes. The Supreme Court of India, in its judgment in *PUCL v. State of Maharashtra*²⁰² laid down 16 guidelines to be followed when it came to investigating encounter killings by the police. Court highlighted that Article 21 of the Constitution of India guarantees right to live with human dignity.

Any violation of human rights is viewed seriously by this Court as right to life is the most precious right guaranteed by Article 21 of the Constitution. The guarantee by Article 21 is available to every person and even the State has

²⁰⁰. Indian Penal Code, 1861, S. 166A, Acts of Parliament, 1861 (India).Whoever, being a public servant, knowingly disobeys any direction of the law as to the way in which he is to conduct himself as such public servant, intending to cause, or knowing it to be likely that he will, by such disobedience, cause injury to any person, shall be punished with simple imprisonment for a term which may extend to one year with fine or with both.

²⁰¹. See Indian Penal Code, 1861, S. 166A(c), Acts of Parliament, 1861 (India). states that if investigating officer fails to record any information given to him under sub-section (1) of section 154 of the Code of Criminal Procedure, 1973 (2 of 1974), in relation to cognizable offence punishable under section 326A, section 326B, section 354, section 354B, section 370, section 370A, section 376, section 376A, section 376B, section 376C, section 376D, section 376E or section 509, shall be punished with rigorous imprisonment for 6 months.

²⁰². *PUCL v. State of Maharashtra*, 2014 SCC 831.

no authority to violate that right. Encounter killing must be investigated independently as they affect the credibility of Rule of law.

Protection of society being the paramount consideration, the investigating procedures must be to ensure guilty are apprehended and punished with utmost dispatch and in the process innocent are not harassed. In India there are no defence investigators, private or official as in USA or UK it becomes sacred duty of the police to find out truth by an honest and straight forward investigation²⁰³. The investigating officers should do their duties in accordance with statutory provision as they are not above the law. As investigation is prerogative the executive arm of the state which is the foundation of criminal justice system they should strictly follow the procedures in a fair and unbiased manner. *National Human Rights Commission v. State of Gujarat and others*²⁰⁴, Honourable apex court held investigation and establishment of truth are the main purposes of the courts of justice and indeed are *raison d'etre* for their existence.

3.6 CHALLENGES IN THE CRIMINAL INVESTIGATION IN INDIA

Police is entrusted with the responsibilities of protecting the precious human rights of the citizens at the same time they have to perform various duties that include maintenance of law and order and investigation of offences. The job of investigation is quite tough and challenging which is rendered more difficult in current Indian scenario. The difficulties are mainly due to

²⁰³ R. Deb, *Police Investigation : A Review*, 261 JILI (1997).

²⁰⁴ *National Human Rights Commission v. State of Gujarat and others*, (2009) 6 SCC 767.

Inadequate Investigating Staff and work load, lack of scientific and technical equipment²⁰⁵.

3.6.1. HOSTILE WITNESSES

One of the reasons for the large percentage of acquittal in criminal cases is of witnesses turning hostile and giving false testimony in criminal cases. In India, criminal cases are mainly relies on oral evidence and the problem assumes critical importance when they turns to hostile. The eyewitness has been the king's pins in Criminal justice system²⁰⁶ but they have inherent weakness like greed, fear favor, bias, or emotion etc. Law Commission in its 14th Report observed that at least 50% police cases failed because the witnesses turned hostile under the influence brought to be upon them by the accused and his supports.²⁰⁷ The problem of hostile witness is a great threat to Indian judicial system. The cases which cannot be settled outside the court is settled in the court by turning the witnesses to hostile

²⁰⁵. Dr Justice V S Malimath, Report on Committee On Reforms of Criminal Justice System, Government Of India, Ministry Of Home Affairs, 2003. P.89 at para 7.6.

Excessive workload due to inadequacy of manpower and long working hours even on holidays and the absence of shift system; ii. Non co-operative attitude of the public at large; iii. Inadequacy of logistical and forensic back up support; iv. Inadequacy of trained investigating personnel; v. Inadequacy of the state-of-the-art training facilities in investigation, particularly in- service training; vi. Lack of coordination with other sub-system of the Criminal Justice System in crime prevention, control and search for truth; vii. Distrust of the laws and courts, viii. Lack of laws to deal effectively the emerging areas of crime such as organised crime, money laundering etc. ix. Misuse of bail and anticipatory bail provisions; x. directing police for other tasks which are not a part of police functions; xi. Interrupting investigation work by being withdrawn for law and order duties in the midst of investigation. xii. Political and executive interference; xiii. Existing preventive laws being totally ineffective in curbing criminal tendencies of hardened criminals and recidivists.

²⁰⁶. B.R. SHARMA, SCIENTITIFC CRIMINAL INVESTIGATION 9(Universal Law Publishing Co 2006).

²⁰⁷. M C Setalvad, Law Commission of India 14th Report on Reform of judicial administration, 754 (1958).

*Zahira Habibullah Sheikh and Anr. v. State of Gujarat and Ors,*²⁰⁸ This is a case which has got serious attention because the main eyewitness has filed affidavits after completion of trial and judgment by the trial Court, alleging that during trial she was forced to depose falsely and turn hostile on account of threats and coercion. Zahira appeared before National Human Rights Commission stating that she was threatened by powerful politicians not to depose against the accused persons. Court criticized that both investigating agency and prosecution were negligent, perfunctory and irresponsible. State does not play a positive role and does not appeal the acquittal. The courts have to take the problem very seriously. Experience of different judicial decision shows that there is an urgent need for witness protection laws.

3.6.2. LACK OF SCIENTIFIC TECHNOLOGIES

The most important step towards the professionalism of the police crime investigation is the comprehensive use of forensic science. Application of science in criminal investigation is not recent one. Earlier investigation was mainly based on eye witness evidence. Now crimes are committed in a more sophisticated means with the misuse of advanced science and technology. In such a situation more and more scientific methods have to be included for collection of evidences and interrogation of suspect.

Success or failure of entire investigation depends on the proper handling of investigation procedures. Hence investigating officers should possess skillful

²⁰⁸. *Zahira Habibullah Sheikh and Anr. v. State of Gujarat and ors*, (2004) 4 SCC 158.

knowledge and experience for collection of evidence. He must fully conversant with collection and recognition of physical evidences, found at the crime scene. He is solely responsible for handling the clue materials. Due to lack of training they are not skilled in collection of forensic evidences.

Mr. Michael Hartman, an officer of United Nations Judicial system and an expert on comparative criminal justice analysed following observations about Indian Police. “The training for police officers are basically how to march, how to shoot and how to keep public order. They have only rudimentary skill and training in investigation.it is like being in army. It is not a modern police force”.

Various commission and committee reports also expressed the need for scientific technologies in investigation. Honourable Supreme Court and our High courts in many cases expressed the view that one of the reasons for low conviction rate in India is lack of scientific investigation.

A few other improvements and additions can also be incorporated for effective crime scene investigation like the deployment of Mobile Forensic Van (MFV) at district or cluster level equipped with tools and spot analysis will be of great help to crime scene investigation.

3.6.3. LACK OF COORDINATION BETWEEN PROSECUTION AND INVESTIGATION WING.

For the success of prosecution there should be a proper coordination between the prosecutor and the Investigating Officer. If there is any negligence

or omission from the side of investigation the prosecutor has to guide them in proper way. If the police and prosecutors do not share the common goals then prosecution will not succeed. Prior to the Code was amended in 1973, the prosecutors appearing in the Magistrate Courts were functioning under the control of police department. Hence there shall be consultation and rectification between these agencies before filing a case before the court of law. The Law Commission of India in its 14th report observed that it was not possible for public prosecutors to exhibit the degree of detachment if they were members of police organization. Based on the recommendation of Law Commission prosecution wing was separated from Police department. *Kishan Lal v. Dharmendra Bafna*²⁰⁹, court held that lack of coordination between different agencies lead to uncertain result. An investigator should develop good prosecutor relationship by conducting investigation along with the legal guide lines.

3.6.4. INADEQUATE TRAINING

The traditional ways of questioning are of no avail in the crimes involving multinational gangsters. Now a days criminal are exploring science for commission of the crime. In order to pursue the modern criminal's high quality, techno savvy investigation methods are needed. Crime investigations are a specialized work where the investigating officers can perform their duties properly only when they are properly trained and possess necessary skills and expertise. Thus there is great need to develop and sharpen investigative skills

²⁰⁹ *Kishan Lal v. Dharmendra Bafna*, (2009) 7 SCC 685.

of the officers through regular training programmes which make them more suitable to combat modern criminals. Today science helps the investigators in his various investigational activities. Hence different methods of scientific investigation shall be included in police training. To achieve the objective of investigation, they must be properly trained and supervised with necessary scientific and logistical support.

In spite of their training in scientific aid to the detection of crime, which is now given in almost all police training colleges in the country even now the investigating officers are failed to adopt these advanced and enlightened techniques of crime detection. Hence Government should take strict action against these erring officials.

3.6.5. POLITICAL AND OTHER UNDUE INFLUENCES

Political interferences drastically hit the professionalism of the police investigations. It comes in a number of ways. In certain cases the police have to take into custody not the real culprits but the critics and the enemies of the political regime. In other cases they have to let off the actual perpetrators of the crime in order to appease the political leadership. External influences also come from the powerful corporate figures, religious leaders, bureaucrats, and even from the top hierarchy of the police. The sincere and unbiased officers are sometimes targeted and isolated within the force itself. Growing liaison between the police and politicians is a great hindrance to effective and impartial functioning of the Police.

3.6.6. WORKLOAD

The professionalism of the police is not just a matter of training and discipline. It mainly evolves working atmosphere of the police force. The heavy workload on the police will kill the professionalism in them. Today the police are mainly seen as the bodyguards of the VVIPs of the state. A lot of manpower and energy of the police force are lavished in order to show off the pomp and power of a privileged few. The roads are decorated with the personnel in uniform ahead of the passage of the VVIPs. In *Joseph Kuncherin Marattukulam v. State of Kerala and Another*²¹⁰ High Court of Kerala held that “we have enough and skillful and sharp investigators in our police force but often they looking for other duties like securities of VVIPS and law and order problems. In our society the police are supposed to be omnipresent: apart from law and order issues, the police are expected to attend wide range of social needs and issues”. In *Manekha Gandhi v. U.O.I.*²¹¹ Honorable Supreme Court observed that Investigating agency cannot be blamed for slow progress that they made in the investigation of a case. This was not the only task of the investigating agency they have other cases and tasks, hence satisfied such delay in this case.

Contributions of police to society are not realized today but and only aberrations of police are noticed and criticized. M.R.Liyod , a senior police officer of British days, said ‘No force in the empire stands higher than the

²¹⁰: *Joseph Kuncherin Marattukulam v. State of Kerala and Another*, 2014 (3) KLT 1.

²¹¹: *Manekha Gandhi v. U.O.I*, AIR 1978 SC 597.

Indian Police²¹². Recently during the onslaught of the COVID 19 the entire machinery of the police are used to protect the people from the spread of the pandemic. The diversion of the duties will adversely affect the professionalism of the police. Hence the workload of police be reduced which will provide a good atmosphere for protecting the life of people and maintenance of law and order. They must be respected for the risk and commitment taken by them protecting the rights of citizens.

3.7. SUGGESTIONS

3.7.1. USE OF SCIENTIFIC TECHNOLOGIES FROM THE VERY INCEPTION.

Application of science in criminal investigation has marked the beginning of new era of investigation. Earlier investigation was mainly based on confession and eyewitness statement. The barbaric and torturous methods of conducting investigation have no place in a civilized society²¹³. Advances in science and technology have radically transformed the technical know-how of common man in recent years. Hence the investigating agency has to keep pace with the development of science and technology in criminal investigation

*BMW Hit and Run case*²¹⁴, in this case Hon'ble Supreme Court while acquitting 3 accused people in an offence under section 304A observed that one of the best well known causes for the failure of a large number of prosecution

²¹². H.R.BHARDWAJ, CRIME, CRIMINAL JUSTICE AND HUMAN RIGHTS 72 (Konark Publishers Pvt Ltd 2013).

²¹³. B S NABAR, FORENSIC SCIENCE IN CRIME INVESTIGATION 1 (S P Gogia 2012).

²¹⁴. State v. Sanjeev Nanda, (2012) 8 SCC 450.

case is the poor, faulty, and unscientific investigation. Court also was pointed out that there are defects prevalent in traditional investigative technique and emphasized for better scientific investigative techniques. Court also criticized the investigating agency for not properly investigating the charge of tampering evidence.

The need for scientific evidences in investigation has been emphasized by our Judiciary in number of cases. In *Dharam Deo Yadav v. State of U.P.*²¹⁵ Honourable Supreme Court held that with the advancement of Science and technology, Criminal justice system has seen the emergence of varied nature of crime thus rendering the traditional method of investigation not too much result oriented rather than it demands change in investigative technique for being the result oriented²¹⁶. Hon'ble Supreme Court observed that even the reliable witness for the prosecution turns hostile due to intimidation, fear, and a host of other reasons. Hence the investigating agency has to, look for other ways and means to improve the quality of investigation.

*State of Gujarat v. Kishan Bai*²¹⁷, A very heinous case ended in acquittal due to lapses in investigation and prosecution. Honourable Supreme Court

²¹⁵. *Dharam Deo Yadav v. State of UP*, (2014) 5 SCC 509. Diana, a 22 year old girl, a New Zealander came to India as visitor in the year 1997. She was found missing after she had left the guest home at Varanasi. After enquiries she could not be traced. Later, it was revealed that Dharam Deo Yadav, tourist had guide committed murder of Diana. Lower court awarded death sentence. But on appeal Supreme Court reduced death to 20 years of rigorous imprisonment due to the lack of any evidence with regard to the manner in which the crime has committed 2014.

²¹⁶. *Dharam Deo Yadav v. State of UP*, (2014) 5 SCC 509 at para 30.

²¹⁷. *State of Gujarat v. Kishan Bai*, 2014 5 SCC 108. Rape and murder of six year old girl child, - A very heinous case ended in acquittal due to lapses in investigation and prosecution. Trial Court sentenced Kishanbhai to death. Kishanbhai was acquitted by giving him the

highlighted that even though there has been a great advancement in scientific investigation the investigating agency not sought for DNA profiling technique which would have given a clear picture whether or not the blood of the victim Gomi was, in fact on the clothes of the accused-respondent Kishanbhai. This lapses in the investigation resulted the omission of a vital link which would have unquestionably established guilt of accused. In this case, the Court vehemently criticised investigation and directed the home department to give adequate Training programme to the investigating officers within 6 months to ensure that those officers who handle sensitive matters concerning investigation/prosecution are fully trained to handle the same. Court also directed, Home Department of every State Government to formulate a procedure for taking action against all erring investigating/prosecuting officials/officers.

Honourable Supreme Court in *Chotan sao and another v. State of Bihar*²¹⁸ had criticized all agencies of criminal justice system for not doing their role properly. Court in this case observed that even though viscera were sent for chemical examination but charge sheet has been filed without receiving the report. Court also emphasized that no external or internal injury has been found on the post mortem examination of the body. Apex courts observed that

benefit of doubt. Dissatisfied with the order passed by the High Court, the State of Gujarat approached this Court by filing Petition for Special Leave to Appeal.

¹⁰¹. *Chotan sao and another v. State of Bihar*, 2014 (1) KLT Suppl. 43 (SC). Accused were charged under section 328, 3024B and 98 of IPC and sections 3 and 5 of Dowry prohibition Act, 1961. Trial Court found all were guilty and convicted under each section. High Court also confirmed the lower court judgment. On appeal High Court also confirmed lower court judgment. Against the judgment of High Court two accused filed this appeal in Supreme Court.

both the lower courts were mistakenly reached the conclusion that death occurred otherwise than under normal circumstances. Court has not considered the argument of prosecution that chemical examination report was not mandatory in every case of dowry death. Court highlighted Viscera report is a very vital document particularly in the absence of direct evidence regarding consumption of poison. Besides the investigating agencies Court also criticized the public prosecutor for not guiding the investigating officer properly and the Magistrate for not applying his judicial mind and mechanically committing this case to Court of Session. The Court highlighted that lapses on side of investigating agencies would result in number of acquittals and there by shake in the faith of the society in the system of administration of criminal justice, which has reached considerably lower than desired. Lack of expertise and un sustained effort in investigation and non-utilization of scientific methods of investigation is resulting in low rate of convictions and even implication of innocent accused persons²¹⁹. In this case court also observed that inept, unscientific investigation by the police is one of the reasons for low conviction rate²²⁰.

Due to the complex and sophisticated nature of the techniques used by criminals for the commission of crimes, the primitive methods of identification of the criminals on the basis of eyewitness have become obsolete. Hence the best evidence can be collected through scientific method of investigation and

²¹⁹ Virendra Kumar Ohri v. Union of India and Others W P (C) 341/2004.

²²⁰ Virendra Kumar Ohri v. Union of India and Others W P (C) 341/2004. Para 2.3

clinching circumstantial evidence. Hence, proper training shall be given to police officers about the scientific techniques used in the investigation.

3.7.2. SEPARATION OF INVESTIGATION.

In almost countries in the world crime investigation department is a separate wing. In UK they have separate division for crime investigation. Crime scene investigators also known as 'scene of crime officers, attend the crime scene when an offence is reported. Their main task is to protect and preserve the Crime scene , demonstrate the boundaries, take photography and videography of the crime scene, examining the fingerprint, collection of samples, packing and storing of potential evidence, preparing the statement, submit the collected evidence for analysis, attending the court to give evidence. CSIs are trained to identify record and recover forensic evidence from all types of crime, ranging from criminal damage, burglary and vehicle crime to more serious crime types including arson and murder. CSIs use a wide variety of techniques and equipment to recover forensic evidence. This may include recording the crime scene by taking photographs, powdering for offender's fingerprints, searching for footprints or marks left by tools, taking swabs of blood or collecting fibres, hair, paint or glass. The evidence collected from crime scene can be used for arrest and charge suspect.

In USA also crime scene investigation is done by Crime scene specialist. Their work and responsibilities are same as crime scene investigators of UK. In USA crime scene investigation standards and credentials for investigators may

vary from jurisdiction to jurisdiction. They are required to have a Science background, experience in photography and should have driving license. However professional organizations like International Association for Identification and American Association for forensic science offer different courses for Crime Scene investigation.

In India we have no separate wing for crime scene investigation. Officials in all ranks from the Constable to the Deputy Superintendent of police are entrusted with this task. These officers do not possess specialised knowledge and skills in the use of Forensic techniques. They do not possess advanced training in forensic science. When a crime is reported first duty of them is guard the crime scene. They collect the materials without adequate knowledge which may lead to tampering of evidences or loss of its evidentiary value.

They also assist forensic expert in collection of samples. The samples collected by experts shall be send to Court for sealing and then again to forensic lab for analysis. Submission of reports takes time and such delayed reports lose the value in guiding the investigation. The crime scene procedure in India is very complicated and lengthy .If we have a separate agency for crime scene investigation long delay for crime scene investigation can be avoided.

In India various commissions and committees were constituted to learn and to make recommendations for the reformations in police. The most important recommendations made by majority of such committees were the

separation of investigating agency from law and order wing for effective criminal investigation.

The Government of India appointed National Police Commission (NPC) in 1977²²¹ to undertake a review of the entire system and working of the police organization. One of the recommendations of the said commission was investigative functions of the police should be made completely independent of any extraneous influences²²². National Human Rights Commission in its report in the year 1995 also recommended separate the investigative wing of the police from its law and order wing and insulate it from political, executive and other interference. It also requested the government to implement the recommendations made by the NPC. Law Commission in its 154th report in the year 1996 recommended for separate investigating agencies for police investigation so as to reduce executive control in investigation²²³. In 1996, two police officials filed a petition in the Supreme Court of India for directing the Central Government and State Governments to draft a new Police Act which would follow the Model Act/Bills or to implement the recommendations of the National police Commission²²⁴. In 1998 the Court set up the Ribeiro Committee which handed in its reports in 1999 by recommending separation of

²²¹. This was the first Commission appointed at the national level after Independence to study the reformation of police.

²²². Dr Justice V S Malimath, Report on Committee On Reforms of Criminal Justice System, Government Of India, Ministry Of Home Affairs, 2003.

²²³. Justice Jayachandra Reddy, Law Commission of India 154th Report on The Code of Criminal Procedure 1973, 1996 at chapter 2 para 1.

²²⁴. Prakash Singh and others vs. union of India, (2006) 8 SCC 1. In 1996, Prakash Singh, a retired police officer and another Director General of Police filed a petition in the Supreme Court of India for directing the Central Government and State Governments to draft a new Police Act which would follow the Model Act/Bills.

law and order from investigative functions. This Committee further recommended for establishing a Security Commission to evaluate the police performance and its accountability towards the law of the land²²⁵. It also recommended manner for selection of DGP so that the investigative wing of the police will be made insulated from undue pressure²²⁶. This was followed by the Padmanabhaiah Committee report in 2000 which also recommended separation of investigating agency from law and order wing²²⁷. Malimath Committee on Reformation of criminal justice 2003 also recommended for a separate investigative wing from law and order wing²²⁸. In *Prakash Singh v. Union of India*²²⁹, The Court pronounced its verdict in 2006. The states and union territories were directed to comply with seven binding directives that would prompt the reform.

“There should be a separate and exclusive cadre of investigating agency to investigate grave offences in every district subject to supervision by the higher authorities. When a case is taken up for investigation by an officer of such agency, he should be in charge of the case throughout till the conclusion of the trial. He should take the responsibility for production of witnesses, production of accused and for assisting the prosecuting agency. The police official entrusted with the investigation of grave offences should be separate

²²⁵. The Police Performance and Accountability Commission (PPAC).

⁹⁹. J F Ribeiro IPS, Report of the Committee on Police Reforms, Government of India, Ministry of Home Affairs, 1998.

²²⁷. K Padmanabhaiah, Report of the Committee on Police Reforms, Government of India, Ministry Of Home Affairs, 2000.

²²⁸. Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2003.

²²⁹. Prakash Singh and others v. union of India, (2006) 8 SCC 1In 1996.

and distinct from those entrusted with the enforcement of law and order and other miscellaneous duties”.

The Court required immediate implementation of its orders either through executive orders or new police legislation. One of the directives was Separation of Investigation and Law and Order Police. Apex Court gave the directions to Central government and to State governments to set up separate departments for investigation to prevent political interference and to make the force accountable.

Supreme Court constituted Justice K T Thomas committee in 2008 pursuance of the directions in *Prakash Singh v. Union of India*²³⁰. The committee submitted its report in 2010 which says provisions has in made in executive orders ,but it remain only in paper so far.

From the discussion it is clear that administration of justice in India could be effective when there is an Independent Investigative Agency to investigate criminal cases apart from Law and order wing of the Police.

3.7.3. EXPEDITIOUS AND FAIR INVESTIGATION.

As the main organ of law enforcement machinery, police play an important role for providing fair trial to accused as well as to victim. In order to be fair trial there should be careful search for truth, supported with sufficient evidence which can establish the guilt or innocence of accused. Investigating officer should not be biased and not subject to any sort of external influences. Fair trial

²³⁰ *Prakash Singh and others v. union of India*, (2006) 8 SCC 1In 1996.

is considered to be the most significant right guaranteed to accused as well as to the victim. These rights are guaranteed through International Conventions of Human right,²³¹ Constitution of India²³² as well as our Procedural laws. Honorable Supreme Court in *Maneka Gandhi v. Union of India*²³³ and in *Hussainara Khatoon v. State of Bihar*²³⁴ interpreted Article 21 as “fundamental right on every person not to be deprived of his life or liberty except according to procedure established by law; that such procedure is not some semblance of a procedure but the procedure should be “reasonable, fair and just”; and there from flows, without doubt, the right to speedy trial”

It is the duty of the State to provide fair investigation. The citizen has the fundamental right for fair and proper investigation. If the State fails in that duty, it will have an adverse bearing on the administration of criminal justice and that ultimately may lead to private retribution which no civilized society can afford to bear. Fair investigation and fair trial are concomitant to preservation of fund. If present investigation system is not able to rise to the expectations of the people and conduct investigation in a fair and proper manner Government should thought of making necessary amendments. In *Vakil Prasad Singh v. State of Bihar*²³⁵, it was observed that speedy investigation and

²³¹. Various rights associated with a fair trial are explicitly proclaimed in Article 10 of the Universal Declaration of Human Rights, the Sixth Amendment to the United States Constitution, and Article 6 of the European Convention of Human Rights, as well as numerous other constitutions and declarations throughout the world.

²³². Art. 21 of Constitution of India states that no person shall be deprived of his right to life or personnel liberty except according to the procedure established by law.

²³³. *Maneka Gandhi v. Union of India*, (1973) 3 SCR 530.

²³⁴. *Hussainara Khatoon v. State of Bihar*, 1979 AIR 1369, 1979 SCR (3) 532.

²³⁵. *Vakil Prasad Singh v. State of Bihar*, 2009 (2) KLT Suppl. 1 (SC), AIR 2009 SC 1822.

trial were both mandated by letter and spirit of the provisions of Cr P C and the constitutional provisions enshrined in Article 21 of the Constitution.

*Rubabbuddin Sheikh v. State Of Gujarat & Ors*²³⁶, Supreme Court has held that it is necessary to ensure that investigation should not only be fair but should also be seen to be fair in order to instill confidence in the mind of victims of crime and the general public.. The expression fair and proper investigation in criminal jurisprudence means two imperatives it must be unbiased, honest just and in accordance with law and secondly entire emphasis has to bring out truth of the case before the court of competent jurisdiction²³⁷

Kolkata High Court in *Nepal Krishna Roy & Ors v. State of West Bengal & Ors*²³⁸ observed that in order to be fair investigation “investigating officers should perform their duties in an impartial fair and professional manner, maintaining their professional conduct. Investigating officer should give true and fair account of facts otherwise it may lead to wrongful acquittal²³⁹ .

Inordinate delays in the investigation and prosecution of criminal cases involving serious offences and in the trial of such cases in the Courts is a blot on justice system. The objective of penal law and the societal interest in setting the criminal law in motion against the offenders with reasonable expedition is thereby frustrated. The adverse effect of delay on the society at large is

²³⁶ Rubabbuddin Sheikh v. State of Gujarat & Ors, 2010 (1) KLT SN 35 (C. No. 44) SC.

²³⁷ Vinay Tyagi v. Irshad Ali @ Deepak and others, (2013)5SCC 762.

²³⁸ Nepal Krishna Roy v. State of West Bengal, 2014 SCC OnLine Cal 17637.

²³⁹ Suresh Chandra v. State of Madhya Pradesh, 2008 Cri.LJ 4288. In this case investigating officer had fabricated false evidence by surreptitiously inserting the timings in various documents which led to dismissal of appeal.

immeasurable. The fear of law and the faith in the criminal justice system is eroded irretrievably.

The conventional method of investigation based on eyewitness evidence shall not give fairness to investigation. In this era of Science and Technology crimes are done in more sophisticated manner, hence scientific techniques should be used in investigation for fair and speedy investigation.

3.8. CONCLUSION

In every criminal justice administration investigation plays a vital role as the success of prosecution of a criminal case depends on the success of investigation. Various committee reports and judicial decisions revealed that one of the important problem faced by the criminal justice administration in India is low rate of conviction, mainly due to the lack of scientific investigation. Due to the advancement of science and technology, criminals are committing crimes in much planned manner by using advanced and technological tools and measures still the investigative agencies follow the conventional method of investigation based on eye witness evidence. Witnesses come to the court, take oath and quite often give false evidence with impunity. Procedure for taking action for perjury is complex and the judges seldom make use of them. Witnesses turning hostile is a usual thing seen in our trial courts. Delay in disposal of cases affords greater opportunity for the accused to win over the witnesses to his side by threats, or inducements. In order to overcome this problem we should include scientific methods in crime invetsigation.

The Code of criminal procedure is the main legislation leading with the procedure of criminal investigation in conventional crimes. But the Code is silent about how investigation to be conducted in scientific manner. The Police officers and forensic experts depends the standard operating procedure and forensic science text book for crime scene investigation. As the procedures of Scientific investigation is absent in Cr P C the lawyers, police officers , prosecutors and even judges have lack of awareness of crime scene investigation procedure . Hence an Investigation Procedure Code should be established. In order to conduct investigation in smooth and fair manner a separate investigating agency well equipped with scientific technologies should be established. Successful and fair administration of justice depends on several factors including sound initial investigation, professional evidence collection and its scientific analysis along with its interpretation and finally presentation of the case in the court of law by the prosecution. Not only the investigative officer but also the judges, prosecutors, as well as defence counsel should know the science so that they can correlate scientific evidence with the other direct evidences.



CHAPTER IV

SCIENTIFIC INVESTIGATION - EVERY CONTACT LEAVES A TRACE

*“Where ever he steps, whatever he touches, whatever
he leaves even unconsciously, will serve as silent
witness against him”*

- Paul L Kirk

4.1. INTRODUCTION

Due to the advancement of Science and Technology the concept of crime as well as the methods for committing crime had undergone a radical change. The scientific knowledge of ordinary man has increased tremendously in recent years and crime itself has undergone complete transformation. With the invention of mobile phones, internet and computers, crimes are increasing to a greater extent. In combating such type of crimes, conventional method of investigation is not suitable in the present day circumstances. The rapid increase of science and technologies has led to the investigators to depend upon various scientific methods for conducting investigation with the help of material objects properly collected and analysed from the crime scene. Hence application of science in criminal investigation has created new era in methods of investigation.

Scientific Investigation, as the name indicates application of science to criminal investigation²⁴⁰. It is the use of Science to identify and link the culprit with the crime, the victim, the scene, the weapon of offences and other evidence. A criminal cannot commit a crime without leaving some traces. This has been expressed by Paul.L.Kirk²⁴¹ as “Wherever he steps, whatever he touches, whatever he leaves even unconsciously, will serve as silent evidence against him”²⁴². It may be his finger prints or foot prints, something he has marked or scratched fragment of his clothing or tools he has used. At the same time, he may carry on person something from the scene of crime. It may be on clothing or on the tools he has used. The most challenging task of application of scientific technologies in crime scene investigation is the concrete identification of person, subject, scene and material objects connected to the crime. For effective investigation collection, preservation and experimentation of physical clues shall be done very cautiously.

4.2. SCIENTIFIC INVESTIGATION - MEANING AND CONCEPT

Scientific means pertaining to Science and investigation means search for truth. Hence scientific investigation means application of science for searching truth. Oxford Dictionary defines “Science means knowledge about

²⁴⁰ B.R.SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION_4 (Universal Law Publishing company 2010).

²⁴¹ He is the father of Criminalist, The American Academy of Forensic Science, highest honour one can receive in criminalistics carries Kirks name.

²⁴² Paul L. Kirk, The Ontogeny of Criminalistics <https://core.ac.uk/download/pdf/206775619.pdf> (last viewed on Dec.11 2020)

the structure and behaviour of nature and physical world, based on facts which one can prove”²⁴³.

Scientific proof has exhibited tremendous changes in investigation since 14th century²⁴⁴. All academic scientific disciplines are used in criminal investigation. The science used in criminal investigation is truly all-inclusive and includes; Physical Sciences, Chemical Sciences, Bio and Medical Sciences, Engineering Sciences, Psychology Information and Computer Technologies. The extent, intensity, the frequency and utility vary from branch to branch²⁴⁵. Scientific investigation helps in giving information about the manner in which crime was committed and to connect a suspect or the vehicle or to implement in his possession with the scene of crime. The most important function of scientific evidence is to convert suspicion into a reasonable certainty of either guilt or innocence²⁴⁶. Scientific investigation is carried by different branches of forensic science.

In the present age with the tremendous development of science, Forensic experts in various disciplines are now able to render valuable assistance to the investigating police officers in criminal investigation. Their role however, does not, in any way supplant the age-old conventional method but they supplement

²⁴³. SARA HAWKER, OXFORD ENGLISH DICTIONARY (Oxford University Press 2003).

²⁴⁴. DR. ISHITA CHATTERJEE, LAW OF FORENSIC SCIENCE 113 (Central Law Publications, Allahabad 2015).

²⁴⁵. DR. B. R. SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 5 (Universal Law Publishing Co. Pvt Ltd 2006).

²⁴⁶. H. J. WALLS, FORENSIC SCIENCE- AN INTRODUCTION TO SCIENTIFIC CRIME DETECTION 6 (Universal Law Publishing Co. Pvt. Ltd 2002)

the method of investigation in the following ways²⁴⁷, by supplying missing links in a chain of evidence, for strengthening of a weak link, for checking accuracy of a statement made by the suspect or the witness, by clearing up doubtful points in the preliminary stages of investigation, or by assisting in the rapid clearing of routine enquiries. The cardinal principle of applying scientific aid to investigation is the rule of fair play, unbiased approach and openness of mind from collection, evaluation, analysis and use of above evidences both by investigators and forensic experts²⁴⁸. As the Purpose of investigation is collection of evidence, investigating agency has to collect evidence without any loopholes then only objective of investigation will be complied

4.3. FORENSIC SCIENCE

The origin of Forensic Science is related back to ancient Greek and Roman civilizations which had given greater contribution in various disciplines of science including the science associated with criminal investigation. Poisoning being one of the earliest methods of killing a human being, widespread knowledge was gathered regarding its production and use. Symptoms caused by various poisons were identified making it possible to detect their use in previously undetected murders²⁴⁹.

²⁴⁷ · CHARLES R. SWANSON, JR., NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 18 (Goodyear Publishing Company 1996).

²⁴⁸ · Dr. R P Sharma, *Truth Detecting Techniques vis a vis Physical Evidence* IV KLJ 33(2007).

²⁴⁹ · Natasha Sheldon, *History Collection*, <https://historycollection.com/julius-caesar-complicit-death-re-examining-earliest-autopsy-history> (last viewed on Nov.11, 2020).

Archimedes, the man behind exclamation was considered to be the father of Forensic science. After Archimedes an Arabic merchant of 7th century Soleiman had contributed that fingerprint proof as validity between debtors and creditors²⁵⁰. In the eighteenth and nineteenth centuries, large numbers of incidents of collection and scientific analysis of evidences in order to solve crimes and convict the culprits were recorded. Evidentiary techniques included identifying foot prints, fibres, fingerprint, objects attached to clothing, grains collected from the crime scene to those found in suspects body. In 19th century fingerprint technique become common.

It was in 1880 Modern fingerprint identification originated when Henry Frauids and William James Herschel discovered the characteristic of uniqueness and permanence of fingerprint. Sir Francis Galton verified these observations and he was the first person who introduced the first elementary system for classifying fingerprint based on patterns into arches, loops, and whorls.²⁵¹ Sir Edward R Henry improved the Galton system which was later known as Galston Henry system of fingerprint classification which is the most widely used classification today²⁵².

Even though scientific application to criminal investigation dates back to Roman Empire it becomes a discipline hardly 100 years before. Natural science

²⁵⁰. New Word Encyclopedia, https://www.newworldencyclopedia.org/entry/Forensic_science (last viewed on Dec. 12, 2020).

²⁵¹. B C BRIDGES AUGUST VOLLMER, M MONIR, CRIMINAL INVESTIGATION PRACTICAL FINGERPRINTING THUMB IMPRESSIONS HAND WRITING EXPERT TESTIMONY OPINION EVIDENCES 15 (The University Law agency 2000).

¹³.-B C BRIDGES AUGUST VOLLMER, M MONIR, CRIMINAL INVESTIGATION PRACTICAL FINGERPRINTING THUMB IMPRESSIONS HAND WRITING EXPERT TESTIMONY OPINION EVIDENCES 17 (The University Law agency 2000).

began to grow rapidly in 19th century. During that time Sir Arthur Conan Doyle through his fictional character Sherlock Holmes popularized scientific crime detection methods. This gave inspiration to scientist and investigators to apply scientific methods for investigations. In 20th century its application becomes popular. Today there will be no crime investigation without the application of scientific technologies.

In India, the application of science and technology for detection and investigation of crime is not new. Even though our ancestors did not know application of forensic science in present form, they applied science for detection of crime in one form or other and its detailed reference can be seen in Chanakya's 'Arthasastra' which was written 2300 years ago and states that death can be caused by four ways of stopping the breathing²⁵³ (strangling, hanging, asphyxiation or drowning). Now forensic science is used to investigate nearly all crime scenes. With the advancement of science and technology scientific techniques with the help of forensic science became necessary part of criminal investigation.

A forensic science forms a unique partnership with law enforcement and the law. This partnership is unique because the members of each of these three fields know very little of the other two, but heavily depend on them. This is

²⁵³ JUSTICE K KANNAN, MEDICAL JURISPRUDENCE AND TOXICOLOGY 4 (LexisNexis 2016)

especially true regarding the lawyers knowledge of the forensic sciences. However, it is also true of the scientist understanding of the law²⁵⁴.

The word Forensic is derived from the Latin word 'Forensis' which means belonging to courts of justice or of public discussion and debate.²⁵⁵ It is considered as a place where meeting about civil and criminal matters were discussed. The injured and accused were presenting their case before the judicial forum. Due to the historical connection the word forensic is used to refer legal evidences that are presented in court.

Forensic science is the scientific discipline which relate to recognition, evaluation, individualization and evaluation of physical evidence by application of methods of principles of natural science for the purpose of administration of justice²⁵⁶. Forensic science in fact, organized knowledge of the application of science to explain scientific problems which appear in the administration of justice²⁵⁷. It contain all forms of natural science like physics, chemistry, biology and engineering Forensic science can help investigators to understand how blood spatter patterns occur (physics), learn the composition and source of evidence such as drugs and trace materials (chemistry) or determine the identity of an unknown suspect (biology). Its two peculiarities

²⁵⁴. Richard Saferstein, *Forensic Science Handbook 2* (New Jersey State Police, Prentice Hall Regents 2015).

²⁵⁵. B S NABAR, *FORENSIC SCIENCE IN CRIME INVESTIGATION 1*(S P GOGIA 2012).

²⁵⁶. B S NABAR, *FORENSIC SCIENCE IN CRIME INVESTIGATION_1*(S P GOGIA 2012).

²⁵⁷. Soma Dutt Vasudeva, *The science and the crime* CriLJ 328 (2006).

are that it is multi professional and multidisciplinary²⁵⁸. Role of forensic science in criminal justice system is that it provides scientifically based information by analysing physical evidences collected from the crime scene. Evidence collected from the crime scene is analysed in crime laboratory and results are presented in court of law. Each crime scene is unique, and each case presents its own challenges.

The forensic science explains the identity of the suspect who committed the crime. The evidence clearly indicates the type (what) of the crime committed. The circumstances speak out the time (when) of the incident. The forensic evidence proves the location of the offence (where/crime scene). The forensic investigation finds out the modus operandi of the offender²⁵⁹. Forensic science does not fall into category of fundamental science. It draws upon the general principles of basic science and technology, and adapts them to use in crime investigation. It is considered as an effective, dependable and convincing and most valuable tool to establish the crime and criminal during the trial. Due to ever increasing role of forensic science in prevention, detection and investigation it has become important partner of criminal justice system of the country²⁶⁰.

²⁵⁸. A K BAPULY, FORENSIC SCIENCE - ITS APPLICATION IN CRIME INVESTIGATION 1(Paras Medical Publisher 2006).

²⁵⁹. DR. ISHITA CHATTERJEE, LAW OF FORENSIC SCIENCE 9 (Central Law Publications, Allahabad 2015).

²⁶⁰. A K BAPULY, FORENSIC SCIENCE - ITS APPLICATION IN CRIME INVESTIGATION 1 (Paras Medical Publisher 2006).

The functions of forensic science are to provide answer to the following three questions²⁶¹: whether a crime has been, committed?²⁶², How and when it committed?²⁶³ And who committed the crime?²⁶⁴.

4.4. NEED FOR SCIENTIFIC INVESTIGATION

The present day scenario of criminal justice system in India is poor. A large percentage of criminal cases end in acquittal. It is estimated that prosecution agency spend lakhs and lakhs of rupees on each trial as expenses for judges, prosecution, court staff and for witnesses. Thus not only dangerous criminals escape but also huge public money is wasted. The demand for scientific criminal investigation has increased day by day due to many factors.

4.4.1. SOCIAL CHANGE: -

The society is undergoing changes very fast. Indian culture has changed from colonial rules to democratic nature. Due to such changes the crime investigation techniques have also reformed. The use of “third degree” techniques used in earlier days does not find favour with the new civilized society. The tremendous changes in transport with high speed cars, railways and aircrafts have given wings to the culprit. A culprit may commit a crime in one place and escape to another country within hours, before he is arrested.

²⁶¹. DR. B R SHARMA FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 9 (Universal law publishing co. Pvt ltd 2014).

²⁶². Consider the case of recovery of dead body. Death could be natural, accidental, or homicidal, Forensic science by ascertaining the nature of death, establishes the existence or absence of corpus delicti.

²⁶³. Examination of Corpus Delicti reveals the way the crime was committed and possibility of time when it was committed.

²⁶⁴. From the collection and analysis of evidences, it can reach the conclusion that who committed the crime.

Cell phones and satellite communications have transformed the societal interaction to unbelievable dimensions enabling exchange of messages and talks from miles apart, enabling planning and execution in one country while the crime is committed in another country.

4.4.2. TECHNICAL KNOWLEDGE:-

The scientific knowledge of an ordinary man has increased tremendously in recent years. The criminals are using scientific technique for the commissions of crime. Hence the investigating officer needs scientific methods to combat modern scientific criminal.

4.4.3. WIDE FIELD: -

Smuggling, human and drug trafficking, cybercrimes, international terrorism, financial frauds etc. became global phenomena now. The attack on the World Trade Centre destroying properties worth billions of dollars and killing thousands of persons at one go points out how criminals abuse science to carry out nefarious activities.

4.4.4. BETTER EVIDENCE: -

Primary method of investigation was mainly based on eyewitness evidence. Even though eyewitnesses have been considered as the king's pins in the criminal justice system, it has some inherent weaknesses like observation skill, memory, retention power, descriptive skill and subconscious

rationalisation²⁶⁵. In such case, the actual observational content of the account of the eyewitness becomes highly subjective and hence suspect. In most of the crime scene eyewitnesses are not available and if available they may turn to hostile.

The Law Commission in its Fourteenth Report observed that

*“The percentage of acquittals in criminal cases has reached a high figure; and this is not always due to the police being unable to place adequate evidence before the courts. The Inspector General of Police, Bihar, told us that at least fifty per cent of the police cases failed because the witnesses turned completely hostile under the influence brought to be upon them by the accused and his supports”*²⁶⁶.

The most important reason for these acquittals is mainly due to obsolete method of investigation. In India the application of science and technology to the investigation of crime is not up to the mark. Acquittal of accused due to hostile witness is a common phenomenon now.

*Zahira Habibullah Sheikh & Anr v. State Of Gujarat &Ors*²⁶⁷ is a case which has got serious attention because appellant has filed an affidavit after pronouncement of judgement, alleging that she has deposed falsely and then turns to hostile witness due to threat and coercion from the side of accused. Court observed that fair trial obviously would mean a trial before an impartial

²⁶⁵. B R SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 9 (Universal Law Publishing company 2006).

²⁶⁶. M C Setalvad, Law Commission of India 14th Report Reform of judicial administration, 754 (1958).

²⁶⁷. *Zahira Habibullah Sheikh & Anr v. State of Gujarat & ors*, (2004) 4 SCC 158. It is also known as Best Bakery case. It is a case where burning down of the Best Bakery a small outlet in Vadodhara Gujarat, on 1st March 2002. In this incident 14 persons were killed by the mob. Trial Court acquitted all accused because most of the witnesses turn to hostile.

Judge, a fair prosecutor and atmosphere of judicial calm. Fair trial means a trial in which bias or prejudice for or against the accused, the witnesses, or the cause which is being tried is eliminated. If the witnesses get threatened or are forced to give false evidence that also would not result in a fair trial²⁶⁸. The failure to hear material witnesses is certainly denial of fair trial. Court also added that “Witnesses” as Bentham said: are the eyes and ears of justice. If the witness himself is incapacitated from acting as eyes and ears of justice, the trial gets putrefied and paralysed, and it no longer can constitute a fair trial²⁶⁹. Witnesses turns to hostile due to many factors inducement, threat, promises etc. In India we have no witness protection laws and the decision itself is clear that, the prosecution cases will be failure if the investigating officers completely follow traditional investigation method.

4.5. DIFFERENT AREAS OF FORENSIC SCIENCE

4.5.1. CHEMISTRY

Everything in the universe is made of chemicals. Many of the changes we observe in the world around caused by chemical reactions. Chemistry is a branch of science that deals with the study of properties, composition and structure of substances. Forensic chemistry is the application of chemistry where principles of chemistry and analytical techniques are used for the detection of crime. It is generally accepted and recognized by the criminal justice system. Forensic chemistry is becoming an increasingly popular and significant subject. It is important because without it we couldn't know the

²⁶⁸. Zahira Habibullah Sheikh & Anr v. State of Gujarat & ors, (2004) 4 SCC 158 at para 36.

²⁶⁹. Zahira Habibullah Sheikh & Anr v. State of Gujarat & ors, (2004) 4 SCC 158 at para 40.

outcome of a crime. Chemists analyse trace evidences found at crime scene in order to identify unknown materials and match samples of known substances. The results so obtained can be used to link the suspect to the crime.

Forensic chemistry deals with the chemical analysis of a variety of types of physical evidences. These includes glass fragments, arson debris, gunshot residue on the hands of a shooter, blood stains, fibres, drugs and even samples of hair. Vast ranges of analytical techniques are generally employed in the forensic analysis. Choice of technique and instrument to be used depends on type of sample to be analysed. The various tools and techniques used for the separation and identification of components in the sample include Gas Chromatography (GC), High Performance Liquid Chromatography (HPLC), Thin Layer Chromatography (TLC), Ultra Violet (UV), Infra-Red (IR), X-ray Spectroscopy, Gas Chromatography – Mass Spectrometry (GC-MS), Nuclear Magnetic Resonance (NMR), Spectrophotometry, Neutron Activation Analysis (NAA) etc. Besides, a number of chemical reactions are carried out to characterize chemicals present in the sample.

Forensic chemistry is employed in both criminal and civil cases. Its scope and significance include examination of petroleum products, analysis of narcotic drugs and illicit liquors, determination of alcohol and drugs in blood and urine, examination of low standard construction materials like cement, bricks, etc., examination of metal alloys and metal fragments, examination of inflammable material in suspected cases of arson, dowry death, etc., analysis of fire arms and ammunition, analysis of dyes, paints, inks, etc., analysis of

pesticides and insecticides, drugs screening of athletes, etc. Thus, Chemistry has played a pivotal role in the field of forensic investigation as a science of separation and identification of components present in the given sample.

4.5.2. BIOLOGY

Body fluids such as blood, semen, saliva, urine, hair, nails, etc., are vital in the investigation cases of murder, assault, dacoity, rape, accident etc., are, which are analysed in Forensic Biology and Serology division of Forensic Science Laboratory. Fibres, diatoms, plant materials like wood, leaves, seeds, pollens, wild animal remains in shooting and/or poaching besides DNA profiling for individualization are also come in the biology division.

4.5.3. BALLISTICS

Identification of fire arms, fired ammunicions, gun powder residue analysis etc., are carried out by the ballistic division. This division also helps police to reconstruct the squints of events and the situations and factors responsible in fire arms cases.

4.5.4. FORENSIC ENTOMOLOGY

This branch helps to estimate the time of death when the circumstances surrounding the crime are unknown. Forensic entomologist, by taking into consideration climate and weather conditions specific insect present in the body can understand when decomposition begins and approximately how long the body has been left exposed.

4.5.5. FORENSIC ODONTOLOGY

Performing the examination and evaluation of dental evidences is Forensic Odontology, which helps its practitioners to provide information for the identification of victims, when the body is left in an unrecognizable state, with characteristic of teeth, their alignment, and the overall structure of the mouth. The tooth lasts longer than other tissues as decomposition begins due to enamel's resistance. Bite mark analysis too comes under Forensic Odontology.

4.5.6. MEDICINE AND TOXICOLOGY

Toxicology is a branch of medical science dealing with the analytical methods of detection and estimation of poisons in body with respect to their sources, characters and properties, they helps to detect drugs and alcohol in blood and urine samples collected from the suspects of drug abuse and drunken driving.

4.5.7 ANTHROPOLOGY

Primarily concerned with identification and examination of human skeletal remains, that are durable and resistant to rapid decomposition, Forensic anthropology helps a forensic anthropologist to provide individual characteristics during mass disaster, their origin, sex, approximate age and race. A forensic anthropologist can also be aided in creating facial reconstructions to aid in the identification of skeletal remains.

4.5.8. FORENSIC ENGINEERING

It is tasked with the answering questions as how did an accident or structure failure occur? Were the parties involved responsible? If so, how were they responsible? Forensic engineers are concerned with failure analysis, accident reconstruction, and causes and origins of fires or explosions through examinations and reviews of accident scenes, photographs and mechanical objects if any.

4.5.9. CYBER FORENSICS AND COMPUTER CRIMES

Internet providing a global reach to people, acquiring and distribution of materials across the globe has given rise to criminal activity involving an information technology infrastructure, including unauthorized access, illegal interception, data interference, system interference and electronic fraud.

Cybercrime, the latest and perhaps the most complicated problem in the cyber world, encompasses usage of a computer either as a tool or target or both for unlawful acts as theft of information contained in the electronic form, e-mail bombing, data dealing, logic bombs, Trojan attacks, internet thefts, etc.

4.5.10. QUESTIONED DOCUMENT

A forensic term, questioned document pertains to a document that is potentially disputed in a court of law wherein a question about the authenticity of any document is raised. Forgery can be detected scientifically in a large number of cases with document examiners conducting examinations and comparisons like handwriting and signatures; typewriters, photocopiers,

4.5.11. FORENSIC PSYCHIATRY AND PSYCHOLOGY

A specialized area studying relationship between human behaviour and legal proceedings, Forensic Psychiatrists are retained for both civil and criminal litigations wherein they determine the competency of the people to make decisions about preparing wills, settling property and capacity of the people to stand trial. Forensic psychologists help in conducting psychological tests like brain mapping narco analysis and polygraph on criminals.

Science and law are interlinked. Law regulate the science and science helps law for proper dissemination of justice by applying different areas of science.

4.6. PRINCIPLES OF FORENSIC SCIENCE

Forensic science has contributed some principles to criminal investigation which has been developed through research and study of criminal activities and their mode of operation. All branches of natural science and law are the basis of these principles.

Forensic science is concerned to determine what happened, how it happened, when was happened, who was the real culprit so it is a combination of circumstances affected by different variables. Besides forensic scientist who examines the samples, which may be minute or some traces which have unknown history. Hence law and principles of all the sciences form the basis of forensic science. In addition, it has developed its own principles.

Following are the seven basic principles of forensic science.

1. Law of Individuality
2. Principle of Exchange
3. Law of Progressive Change
4. Law of Comparison
5. Law of Analysis
6. Law of Probability
7. Law of Circumstantial Facts.

4.6.1. LAW OF INDIVIDUALITY

Every object, natural or man-made has an individuality, which is not duplicated in any other object. It is unique, neither the nature has duplicated itself nor man can²⁷⁰.

Every object, artificial or otherwise is unique although from a distance, objects of the same morphology, class etc. may seem the same. Even though the grains of sand, common salt, seeds of plants, coins of same denomination, currency notes look exactly alike but each thing has its own individuality. The Law of Individuality is of fundamental importance in forensic science. Anything and everything involved in a crime has individuality. Thus the culprit is unique, his modus operandi is unique, his weapon of offence is unique, scene of crime is unique, evidentiary clues left over or picked up by the culprit are unique; we have just to identify, the uniqueness to link the crime with the

²⁷⁰. DR. B. R. SHARMA FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 14 (Universal Law Publishing Co. Pvt Ltd 2014).

criminal²⁷¹. Fingerprints and DNA may all be similar but they are distinctly unique

4.6.2. PRINCIPLE OF EXCHANGE

Popularly known as Edmond Locard's maxim on interchange "that a person or persons at a scene where a crime has been committed will almost always leave or take something away". Whenever two entities come in contact there is an exchange of traces mutually. This is the principle of law of exchange²⁷². When a criminal enters the crime scene he brings something to the crime scene and leaves with something from it. The things he brought in and left with are things of such minute nature, that they serve as a silent witness against the criminal.

This theory later came to be known as the Locard's principle. There were a lot of evidences that a criminal left at the crime scene like fingerprints or footprints, hair, the fibres from clothes, the glass they breaks, the tool mark they leaves, the paint they scratch, the blood or semen etc. These evidences are factual and physical evidences which are complete and can be relied upon to draw logical conclusions. The problem which reduces the value of such evidence was the inability of the investigator to find study and understand it. The modern system of having a specialized team to collect every minute evidence is based on these principles put forward by Locard.

²⁷¹. DR.B. R. SHARMA FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 15 (Universal Law Publishing Co. Pvt Ltd 2014).

²⁷². A French Criminologist and pioneer of forensic science. The principles laid down by Edmund Locard became the basis for development of a new branch of science which came to be known as forensic science. He put forward the idea that "every contact leaves a trace". He was also known as Sherlock Home of France.

The basic requirement of the principle is the correct answer of the questions, what are the places or the objects with which the criminal actually came in contact. Investigating officer can collect rich physical clues when he is able to identify the actual point of contact. For e.g. Criminal leaves his footprint on the wall if he enters into the premises through the ventilator and he will, also picks up dirt from there²⁷³. If he breaks a window or door with an instrument used, leaves its marks on the wooden frame. Thus the criminal is likely to leave and carry minute traces.

Paul L. Kirk expressed the principle as “Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as silent evidence against him. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong; it cannot perjure itself; it cannot be wholly absent. Only its interpretation can err. Only human failure to find it, study and understand it can diminish its value²⁷⁴.”

This theory has great significance in crime scene inspection and reconstruction. A criminal may succeed in avoiding being seen or heard at the scene, but he cannot avoid coming in contact with his environment. The detection of exchanged material interpreted to mean two objects were in contact at some point of time.

²⁷³. DR. B. R. SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 15 (Universal Law Publishing Co. Pvt Ltd 2003).

²⁷⁴. PAUL L. KIRK, CRIME INVESTIGATION; PHYSICAL EVIDENCE AND THE POLICE LABORATORY 4 (Inter science Publishers New York 1953).

The exchange of material may be living or non-living, macroscopic or microscopic like trace evidence, which refers to any evidence that is small in size such as hairs, fibres, paint, glass and soil which would require microscopic analysis in order to identify it.

With the use of clue materials collected from the crime scene investigators can link suspects with the victim, crime scene and physical evidences. It includes finger prints, blood, bodily fluids, hair, fibre, weapons and the like. With this principle we can reach the conclusions who did this, how did it happen etc.

In *Harjinder Kaur v. State of Punjab and other*²⁷⁵ Hon'ble justice Paramjeet Singh quoted an article of Mr. Justice R K Abichandani, judge High Curt of Gujarat , 'New Biology and Criminal Investigation',

"As per this theory, when two objects come in contact, traces from one will be transferred to the other, and in both directions. These traces may not be always detectable without scientific aid, but they are always present. This is known as Locard Transfer Theory, which is a linchpin of all forensic examination. The other concepts namely, identification association through class, individualizing characteristics and re- construction are integral to the practice of forensic science and are processes that are used to answer various investigative questions".

The studies conducted by Edmund Locard and Paul L Kirk have contributed very much in the development of these principles and forensic science. These methods helped to solve multiple cases and were based on the

²⁷⁵ *Harjinder Kaur v. State of Punjab and other*, 2013 (2) RCR (CRIMINAL) 146.

simple and logical observation that a ‘crime scene is a gold mine of evidence. If the crime scene is scanned well, it can result in information that can lead to solving the crime and proving the case in the court as well. Such leads obtained from the crime scene can help in scrutinizing the possible outcomes, to reach at the conclusion quicker and can also help in supporting the theory of the investigation in-front of the court.

4.6.3. LAW OF PROGRESSIVE CHANGE

The underlying concept behind this principle is “Change is inevitable” or “Everything changes with the passage of time”²⁷⁶. This principle envisages that nothing is permanent and everything is variable. If the accused is not arrested in time changes happens to criminals also. He becomes unrecognizable and can’t be identified. The scene of occurrence undergoes great changes within span of time. Sometimes the weather and the living beings make extensive changes. Objects involved in crime changes gradually and it depends upon the time and climate. It means prompt action should be taken in the crime scene otherwise the evidential value will be lost.

4.6.4. LAW OF COMPARISON-

According to the principle of law of comparison, “only like can be compared” which means samples can only be compared to like samples; be it reference, questioned or control samples²⁷⁷.

²⁷⁶. Harjinder Kaur v. State of Punjab and other, 2013 (2) RCR (CRIMINAL) 146.

²⁷⁷. DR. B R SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 18 (Universal Law Publishing Co. Pvt Ltd 2014).

4.6.5. LAW OF ANALYSIS

As per this theory, the analysis can be no better than the sample analysed.²⁷⁸ This principle says that, when sampling is not proper and if it is contaminated the result may be wrong. For the effective use of forensic science analysis there should be correct sampling and correct packing.

4.6.6. LAW OF PROBABILITY

All identifications, definite or indefinite are made consciously or unconsciously based on basis of Probability. An act by law of probability results in various chances²⁷⁹. It is a mathematical concept which determines the chances of occurrence of a particular event in a particular way out of a number of ways in which event can take place or failed to take place with equal facility. All conclusions derived after analysis is dependent on method used and their accompanying advantages and shortcomings which are all factored in the end result.

4.6.7. LAW OF CIRCUMSTANTIAL FACTS

The underlying concept in this principle is, 'Facts do not lie, and men can and do'²⁸⁰. Evidence plays an important role in crime scene investigation and it should be highly accurate and highly reliable. In most of the cases accused leave some traces in the crime scene hence collection of material

²⁷⁸. DR. B R SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 18 (Universal Law Publishing Co. Pvt Ltd 2014).

²⁷⁹. ANNAMMA JOHN ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION 16 (Cosmo Books 2019).

²⁸⁰. DR. B. R. SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 20 (Universal Law Publishing Co. Pvt Lt 2014).

objects are highly relevant. This shows the importance of circumstantial evidence than oral evidence. Witness may change his testimony by external influence, pressure inducement threat bias and rationalisation. Hence oral evidence is therefore coloured, whereas materiel evidence is free from these infirmities. The purpose of evidence in court of law is to prove or disprove a fact in issue. Hence the evidence submitted by the investigating agency must establish the facts beyond reasonable doubt. Circumstantial evidence, in spite of its indirect manner, has greater value in crime investigation even in the absence of suspect in the crime scene, some clues like finger print, blood etc. point out he has visited the crime scene.

All these principles play vital role in crime scene investigation. Investigation will be considered successful if the available physical evidences were competently handled and properly analysed. If the collection and analysis are not proper, this principles has no significance

4.7. UTILITY OF FORENSIC SCIENCE IN CRIMINAL INVESTIGATION

Today's world science is inevitable in every aspect of life. It also plays significant role in detection of crime. Science and law are interrelated and dependent on each other. Law controls science and science helps various agencies for proper administration justice. Its application as regular part of investigation is the development of 19th and 20th century. Every aspect of life is governed by scientific inventions and discoveries and scientific knowledge has

made inroads in legal spheres as well²⁸¹. The application of science and technology has reflected every aspect of life criminal justice administrations not an exception to it. Hence scientific investigation is an important link in establishing Corpus delicti or body of offence.

The forensic science establishes the identity of convict through the personal clues like finger print, foot print, blood drops or hair. It links the criminal with a crime through objects left by him at the scene and with the victim or carried from the scene and the victim. On the other hand, if the clues recovered do not linked the accused with the victim or the scene of occurrence the innocence of accused is established. Forensic science thus also saves the innocent.²⁸² The pillar of a criminal case entirely lies on criminal investigation. Scientific investigation with the help of forensic science is much more powerful, reliable and fruitful than eye witness oriented criminal justice system. A victim cannot be left at the mercy of the eye witnesses. Development of scientific investigation provides a powerful tool in the hands of law enforcement and judiciary²⁸³.

As observed by Justice Markendey Katju in his book 'Law in the Scientific Era', Science has no doubt existed since ancient times. But in earlier age, science and technology were almost independent activities having no interlink. It is only in the modern age that science and technology has socially

²⁸¹. PAREKH & SINGHS, LAW RELATING TO CRIME INVESTIGATION AND MEDICAL SCIENCE 1 (Dwivedi & Company 2007)

²⁸². JYOTIRMOY ADHIKARY, DNA TECHNOLOGY IN ADMINISTRATION OF JUSTICE 15 (Lexis Nexis Butterworth 2007).

²⁸³. B. S. NABAR, FORENSIC SCIENCE IN CRIME INVESTIGATION (Asia Law House 2012).

interlinked and gap between them as narrow down. Moreover, in the modern scientific era, subjective knowledge based on experienced is largely replaced by objective experimental deterministic knowledge that minuses chance and probability factors and ensure certainty in our lives.²⁸⁴

4.8. FORENSIC SCIENCE AND CRIME SCENE INVESTIGATION

Crime scene investigation commonly known as 7'S of Crime scene, These are, securing the scene, securing and collecting evidence, separating the witnesses, scanning the scene, seeing the scene, sketching the scene and searching for evidence. Crime scene investigation is a joint effort of law enforcement officers, forensic experts, and medical personnel for collection of evidence and to sort out the events surrounding occurrence of a crime²⁸⁵.

4.8.1. CRIME SCENE VISIT

Crime scene visitation is the most important aspect of crime scene investigation²⁸⁶. Crime scene is a place where crime has committed or where

²⁸⁴. JYOTIRMOY ADHIKARY, DNA TECHNOLOGY IN ADMINISTRATION OF JUSTICE 4 (Lexis Nexis Butterworth 2007).

²⁸⁵. RICHARD SAFERSTEIN, CRIMINALISTICS – AN INTRODUCTION TO FORENSIC SCIENCE 94 (Pearson Education 2015).

²⁸⁶. Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government of India, Ministry of Home Affairs, 2013 at p.110 at Para 7.22. Malimath Committee observed that Investigation involves several stages and the crime scene visitation is one of the most important of them, excluding perhaps, white-collar crimes. Recognizing this need, the Police Manuals in most of the States have mandated immediate despatch of an officer to the scene of crime for inspecting it, preserving the evidence and preparing the site plan etc. Such inspection of scene crimes should be done by a team consisting of forensic scientist, finger print experts, crime photographer, legal advisor etc. and not just by a single investigating officer.

physical evidence of such crime is found²⁸⁷. Investigation of a crime usually starts at the main place of occurrence, the primary scene and depending on the crime it may extend to several places relevant to the crime, the secondary scenes. Both scenes are important and must be thoroughly examined which will reveal the linkage between the criminal and the victim, how they reached the scene, the number of criminals, the modus operandi and identity of the criminals and the victim or victims. The scene of occurrence or crime scene is identified from eye witnesses, corpus delicti,²⁸⁸ marks of struggle, abandoned articles or trace materials. Prompt visit to a crime scene by investigating officer is helpful in collection and preservation of best evidence so as to establish guilt of offender.

Importance of the crime scene lies in the chance that biological, physical and chemical evidence can be collected and analysed to connect a specific individual with the crime.²⁸⁹ A competent investigating officer should be able to determine and understand the importance of physical evidence found in a scene of crime and should be able to determine what physical clues will provide him with scientific evidence.

Before proceeding to the scene of crime for the purpose of conducting investigation, an investigator must be equipped with tools and equipment's

²⁸⁷. It is not a single site, it may be unique sites. The crime may have committed and completed at a number of places then all the sites are crime scene.

²⁸⁸. It refers to body of the crime or the actual physical object upon which a crime has been committed .it may be body of victim, ruined building etc.

²⁸⁹. MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 98 (CRC Press 2013).

necessary for the purpose. It includes Basic Kit²⁹⁰ and Investigator's kit²⁹¹. While investigating, the crime officer must observe every corner of alleged scene of offence and has to make a detailed note of every particular found. The scene should photograph at multiple angles. The most important activity done by investigating officer while reaching the crime scene is to collection of physical evidences. The techniques and skills needed by the investigator for crime scene investigation include the recognition, collection, marking and preservation of evidence. He must try to understand the method of operation, or modus operandi (MO), of the crime which differs from crime to crime and from offender to offender. For instance, a burglar successful in committing one burglary may knowingly or unintentionally use the same method in another burglary. The investigator must record all the specific details of an offence in a written report and modus operandi file. The observation mahazar in respect of

²⁹⁰. A torch, a hand magnifier, a compass, a measuring tape, a steel scale, a note-book and a pencil are the minimum requirements for the examination of the scene. In addition, a number of receptacles, casting and lifting materials and packing paraphernalia are required.

²⁹¹. Investigation kit consist of Examination Kit which contain compass, a magnifying glass, a mirror, a torch (with spare bulbs and cells), a scale, measuring tape, forceps, tongs, and a pair of rubber gloves.

Making And Breaking Kit, it contains a diamond pencil, tool kit containing a set of screw drivers, jimmy, adjustable wrench, wire cutter, hacksaw, hammer and pliers.

Casting Kit which consists of talcum powder, powder sprayer, lacquer, lacquer sprayer, rubber cup, ladle, plaster of Paris, sieve, Aluminum strip frames, wire-gauze, salt, a scale and a towel fingerprint kit .it contains inking slab, ink roller, finger print ink tube, fingerprint powder, camel hair brushes, lifting tape, iodine fuming tube, glass wool, iodine, anhydrous calcium chloride.

Blood Testing Kit, It consist of set of clamping boards with nut and bolts, screws, nails, card board boxes, plastic bags, envelopes, craft paper, tissue paper, test tubes, clean bottles of various dimensions

Collection Kit, It consist of set of clamping boards with nut and bolts, screws, nails, card board boxes, plastic bags, envelopes, craft paper, tissue paper, test tubes, clean bottles of various dimensions.

Sealing And Labelling Kit, It contains rubber band, gummed label, needled, thread, sealing wax, seal etc. needed for sealing and labeling

Recording Kit, writing board, graph paper, noting sheets, carbon paper, drawing paper, various types of forms

the scene of crime shall be prepared by the investigating officer in a crime details form. Prompt visit to the crime scene is the first essential stage of ensuring fair investigation and delayed arrival will result in the loss of valuable piece of evidences.

Prompt visit to the crime scene is the first essential stage of ensuring fair investigation and delayed arrival will result in the loss of valuable piece of evidences.

4.8.2. PROTECTION OF CRIME SCENE

Criminals always leave some kind of traces and it is the duty of crime scene investigator duty to find and preserve this trace which can be used in reconstruction of the crime or for linking the suspect with the victim and crime scene²⁹². The scene of crimes changes rapidly with the passage of time. Some of the important factors which would adversely affect the quality of investigation are weather may be rain or sunlight and gathering of people in the surroundings of the crime scene. When a crime is reported investigating officer cannot always reach the crime scene immediately. Then police official who reaches the crime scene should be very careful to preserve the evidence. He should protect the crime scene from onlookers and undesirable persons, who are disturbing the crime scene. Injured in the crime scene shall be immediately removed to the hospital. If the accused is identified he should be arrested but if there is only suspicion, he should be detained. Scene of occurrence should be

²⁹². ANNAMMA JOHN ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION 27 (Cosmo Books 2019).

properly secured, and all available evidence preserved in an appropriate manner in order to maintain integrity of physical evidence²⁹³.

Crime scene reconstruction is joint effort of law enforcement officers, forensic experts, and medical personnel for collection of physical evidences and to sort out the events surrounding the occurrence of a crime²⁹⁴.

4.8.3. CRIME SCENE PHOTOGRAPHY

Purpose of crime scene photography is to take accurate photographs of crime scene. These photographs are very useful to the investigating agencies during the course of investigation and to the prosecuting agencies in the course of trial²⁹⁵. Photographs in crime investigation help to create a permanent record of the event occurred at the scene of crime; shows the accuracy of the events without bias. It shows all visible things at the crime scene and helps the doctors and investigating officers to refresh memories when they come as a witness before the court of law. It helps to know, the kind of weapon used, its shape and size and also the position of the accused, victim or land.

4.8.4. PREPARATION OF SKETCH-PLAN

It is a necessary step to be taken during investigation. It helps in ascertainment of the correct position of the scene of offence. It should not be left for the courts to imagine the exact position of the witnesses during the

²⁹³. ANNAMMA JOHN ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION 27 (Cosmo Books 2019).

²⁹⁴. RICHARD SAFERSTEIN, CRIMINALISTICS- AN INTRODUCTION TO FORENSIC SCIENCE 94 (Pearson Education 2015).

²⁹⁵. There are many different types of lenses, cameras and lights that can be used for this procedure and even night vision photography is used in certain scenarios

commission of the crime. Preparing Maps and Chart are also relevant for investigation²⁹⁶.

In *Abdul Subhan v. State (NCT of Delhi)*²⁹⁷, during investigation, instead of taking photograph of the site, only a rough site plan was prepared by the investigating authority. Court criticised the investigating agency that even the site plan produced was unsatisfactory in nature. Hence investigating officer should prepare the map of the site besides the crime scene photograph. Court also emphasized need of scientific investigation in accident cases.

It is a well-known fact that road accidents are on the rise and many of these accidents result in death of person. But the investigating agencies are not investigating these accident cases in scientific manner. As a consequence of it many of the cases end in acquittal of accused due to benefit of doubt or lack of evidences. Court also directed that in cases of road accidents particularly those which are charged under section 304 A investigations should be carried out in quick prompt and scientific manner.

4.8.5. VIDEOGRAPHY

Like photography videography is also indispensable in criminal Investigation. In *Shafi mohammed v. state of Himachal Pradesh*²⁹⁸, the question which arose for consideration was whether videography can be accepted as an evidence. The Court by referring its earlier ruling in *Ziyauddin Burhanuddin*

²⁹⁶. The photograph does not mention certain points of specific value. The photography can never give an idea on exact measurement. But quantitative assessment of amount can only reliable through a map.

²⁹⁷. *Abdul Subhan v. State (NCT of Delhi)*, 2007 CriLJ 1089.

²⁹⁸. *Shafi mohammed v. State of Himachal Pradesh*, 2018 (2) SCC 801.

*Bukhari v. Brij mohan Ramdass Mehra & Ors*²⁹⁹, pointed out that for proving crucial evidence audio and video tape technology will provide first hand information and it has emerged as a powerful medium for the same. The Court also noted that new techniques and devices are the need of the day and predominant now

Hence Videography should be mandatory in investigation, especially in crime scene investigation.

4.8.6. COLLECTION OF PHYSICAL EVIDENCE

Crime scene investigation starts with the collection of physical evidence. Physical evidence means evidence having physical or material quality³⁰⁰. It is also known as material evidence or material objects which are the basis for scientific crime investigation. Physical evidence is defined as mean, objects marks and traces discovered at the scene or elsewhere in the course of investigation to crime and scientific examination there of which will be done by specialists in forensic science comes under circumstantial evidence³⁰¹. Webster's dictionary defines Physical Evidence as" articles and materials found in connection with an investigation and which aid in establishing the identity of the perpetrator of the circumstances under which the crime was committed or which in general assist in the discovery of facts"³⁰². It is normally

²⁹⁹. Ziyauddin Burhanuddin Bukhari v. Brij mohan Ramdass Mehra & Ors, (1976) 2 SCC 17.

³⁰⁰. It may be tangible, macroscopic or microscopic and encompasses all objects living or inanimate, solid, liquid or gas.

³⁰¹. M SRIDAR RAO, CRIMINAL TRIAL; PRACTICE AND PROCEDURE 81 (S Gogia & Company 1994)

³⁰². MERRIAM – WEBSTER, MARIAM WEBSTER'S COLLEGE DICTIONARY (Spring field 2003)

obtained from scene of the crime,³⁰³ victim³⁰⁴ suspect³⁰⁵ and the environment³⁰⁶. It is divided into; Corpus delicti,³⁰⁷ Associative evidence,³⁰⁸ and Trace evidence³⁰⁹.

The significance of physical evidence to crime investigator are mainly to - establish the *corpus delicti*, to identify the person involved in the crime, to exonerate the innocent, and to corroborate victim's testimony. Besides it is more reliable than eye witness who often tends to hostile, and it is the only evidence in the absence of direct or other circumstantial evidence. Examination of physical clues or trace evidence will be useful to supply one or more links in a chain of evidence, to strengthen a weak link in a chain of evidence, to check the accuracy or other wise of statements made either by a suspect, victim or a witness to provide a breakthrough where conventional methods of investigation have failed. It would be difficult to say what all physical evidences can be seen in the crime scene as every crime scene is unique. So it must be treated on individual basis as it has its own peculiarity.

³⁰³. The scene of crime usually includes line of approach, point of entry, point of exit and line of departure. The physical evidence from these sources will be excellent piece of evidence

³⁰⁴. If any injury to the victim caused by the accused he is likely to carry on his person or clothing physical evidence from suspect and also from the crime scene.

³⁰⁵. As like victim the accused may provide relevant evidence from the crime scene, his clothing etc.

³⁰⁶. It may be a tangible article, microscopic or macroscopic, living or inanimate, solid, liquid or gas.

³⁰⁷. Consisting of objects or substances which are essential part of the body of the crime, it is a term from Western jurisprudence referring to the principle that a crime must be proved to have occurred before a person can be convicted of committing that crime. For example, a person cannot be tried for larceny unless it can be proven that property has been stolen.

³⁰⁸ This evidence link the suspect to the crime scene or an offence

³⁰⁹. The term trace evidence typically refers to any evidence that is small in size, such as hairs, fibres, paint, glass, and soil, which would require microscopic analysis in order to identify it.

4.9. TYPES OF PHYSICAL EVIDENCE

Physical evidence can be divided into - Living and non-living.

4.9.1. LIVING PHYSICAL EVIDENCES:

Human Body Materials: - The detection and identification of body fluids at crime scene provide wealthy of information, for investigating agencies. When suspected biological evidence is identified either collects the entire item or a sample for biological analysis. Mark the area where sample was found and document the notes containing location and size of the stain. Bodily fluids include blood, semen, saliva, urine, sweat, nasal excretions and human milk.

A. BLOOD

It is the most important biological trace found in the crime scene as it provides valuable information. Blood may be found at the scene of crime, the victim, the accused, on the weapon, on the vehicles or any other point of contact and provides a good investigative lead to the police officers³¹⁰. The most powerful application of blood evidence is the ability to absolutely eliminate a person as a potential suspect in a crime³¹¹. Two common types of blood that can be collected at a crime scene are dry blood and wet blood. More tests can be performed with wet blood as compared to dried blood. Blood stain evidence can be informative in order to ascertain, blood group, child an issue of

³¹⁰. ANNAMMA JOHN , ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION 57(Cosmo Books 2019).

³¹¹. B R SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 408 (Universal Law Publishing Co. Pvt Ltd 2006).

alleged parent, whether the stain in question is blood or not, human or animal blood, male or female, age of the stain, whether it contain poison, alcohol, narcotic drug, or any chemical substance, or whether that person suffers any disease like syphilis or leukemia and also from which part the blood comes from³¹². Blood stain pattern analysis (BPA) is the systematic assessment of visual patterns of blood stains at crime scenes based on the physics of blood. The location, distribution, and appearance of bloodstains and blood spatter³¹³ may be useful for interpreting and reconstructing the events that produced the bleeding³¹⁴. The method seeks to answer the question of how blood travelled through a given space to leave stains on the surface.

When a struggle happens, there is high possibility of transfer of blood between victim and suspect as per Locards principle of exchange. It is better to collect blood from heart leg and arm in case of dead bodies. After the collection of blood from individual bodies, it should be packed in air tight containers mixing with preservatives and anticoagulants. Until delivery to laboratory it should be stored in refrigerator.

³¹². DR. B. R. SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIAL 107 (Universal Law Publishing Co. Pvt Ltd 2012).

³¹³. Blood spatter means when drops of blood hit the floor at an angle, they produce elliptical stains, where their width-to-length ratio gives that impact angle. Traditionally practitioners of blood-pattern analysis trace a straight-line from the stain at the impact angle to reveal where the blood originate.

³¹⁴. RICHARD SAFERSTEIN, CRIMINALISTICS – AN INTRODUCTION TO FORENSIC SCIENCE 94 (Pearson Education 2015).

Evaluation of blood evidence is really a difficult task. Only an experienced expert who handles the works over a period of six months should handle the samples³¹⁵.

B. SEMEN

It is physical evidence which is frequently found in case of rape and other sexual offences. It may be in liquid form smears or stains and collected from both the victim and suspect and also from the scene of occurrence. It is commonly found on clothing, blankets, sheets and undergarment. Before packaging it should be dried at room temperature and wrap these clothing with suspected stain of semen in papers and after that in paper bags which has to be marked with red pencil. Samples should not be packed directly with plastic bags as there is chance for deterioration. It should be ensured by the investigating officer before packing that no two stains on the same article come in contact with each other. Foreign materials should not be separated from the stain.

C. SALIVA

It is a body fluid which is frequently found in a variety of crime situations. It is normally found absorbed into cigarette butts, beedi stubs, handkerchief etc. The entire object should be sent to laboratory if saliva is present on any object. Swabs from mouth of suspect and accused would be collected and sent to laboratory if the injured dies.

³¹⁵. DR. B. R. SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 1083 (Universal Law Publishing Co. Pvt Ltd 2012).

D. URINE

Though it is a difficult body fluid to detect it will glow or shine under alternate light sources. It is composed of water with proteins, organic salts, urea and huge range of metabolites³¹⁶.

E. SWEAT

It is involved only in cases where some garments are left at the scene of crime or where the culprit or the victim has perspired profusely and left at the sweat stains³¹⁷. Nasal secretions, tears and human milk are also amenable to DNA profiling.

F. HAIR

It is the most important clue present in almost all crime scenes. Constant loss and replacement of hair stands all over the body. They are almost tiny, indivisible stable and not decay. Human hair and animal hair are different in colour and length. The pigmentation of human hairs is evenly distributed, but for animals pigmentation is centrally done. It is found on most of the limbs of human being and animals. Hair evidence prove useful to, link the criminal with the crime, weapon used in the crime if there are hair attached to it rough estimate of age of person, ascertain the vehicle used for the transport establish the ownership of the left over articles etc³¹⁸. It is mainly obtained from, scene

³¹⁶. A metabolite refers to any substance involved in metabolism. It is often regarded as the immediate by-product of a metabolic process. Examples of primary metabolites are ethanol, glutamic acid, aspartic acid, acid, acetic acid, lactic acid, glycerol, etc.

³¹⁷. DR. B. R. SHARMA, FORENSIC SCIENCE IN CRIMINAL INVESTIGATION & TRIALS 1100 (Universal Law Publishing Co. Pvt Ltd 2012).

³¹⁸. B.R. SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 427 (Universal Law Publishing company 2010).

of crime, victim, the offender, vehicle or the weapon of offence³¹⁹. Due to the external contamination hair may be found covered with only substances dust and dirt.

Once collected, the hair evidence should be packaged into paper packets. Hair analysis is used in forensic toxicology to test and determine whether a drug was used. With the help of examination of hair roots DNA samples could be performed. If hair roots are not available it is very difficult to identify the accused.

Proper testing and evaluation can answer is it a fibre or hair, human or animal, whether it comes from male or female, from which part of the body, rough estimate of age of individual what is the species of animals, whether it is dyed or bleached, chronic poisoning, or contaminated In order to determine whether a drug was used or not. Hair analysis can be used for the detection of many therapeutic drugs and recreational drugs, including cocaine, heroin, benzodiazepines (Valium - type drugs) and amphetamines.

G. FIBRES

It is important physical evidence. The significance of fibre evidence is that it can be exchanged between two individuals, two objects, between individual and object or found at the crime scene.

³¹⁹ · ANOOPAM MODAK, SCIENTIFIC TECHNIQUES IN CRIMINAL INVESTIGATION 442 (Universal Law Publishing 2015)

H. DNA

In addition to the revolution in information technology the most significant development of the twentieth century however, has been DNA profiling for identification of human beings. It is termed as genetic material since it carries genetic information and passes them from one generation to the next. Identification of a person through DNA is referred as DNA typing, DNA profiling or DNA fingerprinting. DNA technology promises positive identification or elimination of suspect, on the basis of specimen collected at the scene of crime.

I. FINGERPRINT

This is the most important and commonly found physical evidence. Law enforcement agencies use the forensic science of fingerprints, palm prints and footprints in support of their investigations to positively identify the perpetrator of a crime³²⁰. They are unique because no two fingers have yet been found to possess identifiable ridge characteristic. They are permanent because they remain unchanged during the life time of an individual. Ridges form in the foetal stage and do not change later in their life. Finger prints are unique, permanent, universal, inimitable, classifiable, and are frequently available in crime situations as evidence³²¹.

³²⁰. Fingerprints left by the culprit unconsciously at the scene of crime is known as Chance print also termed as 'burglars visiting cards'. They are further classified as Visible Prints, Plastic Prints and Latent Prints.

³²¹. [B.S. NABAR, FORENSIC SCIENCE IN CRIME INVESTIGATION](#) 58 (Asia Law House 2002).

4.9.2. Non-Living Physical Evidences

A. GLASS:

One of the most important types of physical evidence, which is frequently overlooked by investigator, is glass; its evidentiary value lies in the fact that there are thousands of different formulae used in the manufacturing of glass³²². Glass can be made from different materials and that also differ from batch to batch. The presence of such materials in the glass cause to exhibit different properties. This will make it easier to distinguish one sample from another.

Forensic analysis of glass may include physical, chemical and optical properties analysis of physical properties include colour, fluorescence, hardness, density, etc. Chemical analysis also will help to determine its chemical composition. Refractive index (RI), an optical property, is measured by passing light through material. It can be applied even on tiny pieces of glass. From these types of examinations, one can reach at a conclusion that two samples of glass could be from the same origin.

B. PAINT

Presence of paint remnants at a crime scene is a very important trace evidence. It has been transferred from a main source to the scene of crime through some carriers. Paint evidences are more crucial in the majority of hit

³²² · CHARLES R. SWANSON, JR, NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 50 (Goodyear Publishing Company)

and run cases³²³. It may provide a link between a victim and the responsible vehicle. Paint evidences are also utilized in various other types of crimes such as burglary, homicide, etc.

Paint is generally known as a pigmented coating. The main components of paint are solvent binder (resins), pigment and additives. Paint samples received for examination are usually of two types, either in the form of a smear or as flakes or chips³²⁴. After the application of paint on desired surfaces, the solvent will evaporate off leaving behind the solid particles.

Paint sample is found on a variety of objects at a crime scene. It is collect as per the standard established procedure. As paint has both organic and inorganic molecules, a variety of analysis techniques may be employed to find out nature and composition.

C. QUESTIONED DOCUMENT

‘Document’ means any material that contains writings, marks signs or symbols intended to convey a message or meaning to someone. Forensic Document Examination is a branch of Forensic Science in which trained examiners evaluate documents disputed in the legal system. In the forensic evaluation of documents, examination and comparison of handwriting, printing process, ink used and other characteristics related to genuine documents (known documents) are involved.

³²³ · CHARLES R. SWANSON, JR, NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 49 (Goodyear Publishing Company).

³²⁴. ANNAMMA JOHN , ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION 57 (Cosmo Books 2019).

The aim of the forensic document examination is to identify how the document was prepared or how it may have been modified, by evaluating the characteristics of the document.

The main purposes of the examinations are -

- i. To establish genuineness of the document by exposing forgery, alteration, addition or deletion.
- ii. To identify or eliminate persons as the source of hand writing and
- iii. To identify the source of typewriting or other impressions and marks, the ink used and other relative evidences.

For document examination examiners follow recognized and accepted standard procedures developed by well reputed institutions. for example American Society for Testing and Materials (ASTM).

Various tools and techniques are employed for document examination and include Photography – Videos spectral comparator (VSC), Electrostatic Detection Apparatus, Liquid Chromatography, UV / IR studies etc. In almost all methodologies, the last stage of examination is verification. In this step a second expert document examiner re-examine the whole procedure in order to determine whether the conclusions arrived on a particular characteristic or property is acceptable or not.

For hand writing and signature examination, investigators depend on a wide variety of individual's writing characteristics such as construction and proportion, pen movement and pause, writing speed, letter and word spacing,

use of punctuations, pen lifting, retouching and terminal strokes, etc. But care to be taken to account the changes in writing due to maturation, age or illness.

For the identification of writing and printing inks, non-destructive and destructive methods are utilized. For 'non-destructive analysis', visual, microscopic, UV and IR tests are employed. In the 'destructive' method Liquid Chromatography is used to distinguish the ink types and also to determine the chemical composition of ink.

Questioned document examination is conducted by trained forensic document experts. By the application of appropriate devices and procedures as mentioned in the above paragraphs, examiners can establish genuineness or non-genuineness of the disputed document.

D. Drugs

Drug is any substance that can bring physiological and psychological changes in living organisms when consumed. Forensic drug analysis deals with the detection and identification of illegal drugs present in trace evidence found at crime scene. Drug identification is nowadays becoming very important in 'drug abuse' cases, sports medicine, blood sample analysis for the detection of drugs and alcohol and so on.

Forensic drug tests are generally carried out in two steps - screening and confirmatory. In screening tests preliminary examinations are carried out to find out general characteristics of the drug such as nature and class of drugs to which the suspected drug is belonged. This type of examinations involves

Microscopic analysis, microcrystalline test, UV Spectroscopy, Gas Chromatography, etc.

Confirmatory tests involve systematic analysis of drugs to identify the contents of the submitted material. This type of examinations may also include separation and identification of components present in the material. Important tools used are Gas chromatography – Mass Spectrometry (GC-MS) , Capillary electrophoresis, Liquid Chromatography Raman spectroscopy IR Spectroscopy, X-ray Diffractometry, Thin Layer Chromatography and Colorimetry. Also some chemical reactions with certain specific reagents are carried out in order to confirm the compounds present.

From the preliminary and confirmatory tests, forensic drug analysts can prove the presence of drug material, whether illegal or poisonous, in the questioned sample.

E. EXPLOSIVES AND PETROLEUM PRODUCTS

An explosive is an reactive material that contains a great amount of energy that can produce explosion. The most commonly used explosives are condensed liquids or solids that can be converted to gaseous products. Generally, an explosive may consist of either a chemically pure compound or a mixture of a fuel and an oxidizer, such as black powder or grain dust and air. There are, in general, four types of explosions namely physical, chemical, electrical and nuclear. The compounds used in a chemical explosive include

Nitroglycerine, T.N.T, cellulose Nitrate, R.D.X., Ammonium Chlorate, Ammonium Nitrate, Ammonium Dichromate, Erythritol tetra nitrate, etc.

Petroleum products are substances derived from petroleum (crude oil) as it is subjected to distillation in oil refineries. Petroleum products are complex mixtures which include petrol, diesel, kerosene, tar, paraffin wax, lubricating oil, furnace oil, waste oil, etc.

Criminal investigations involving explosives and arson cases using petroleum products, in the eyes of forensic science, are very difficult to separate. So it is better to discuss the two types together. The most common extraction methods employed are Steam distillation, Vacuum distillation, Solid Phase micro extraction (SPME), Activated Carbon Cloth (ACC), etc. No single isolation and characterization technique is available and not practical for the identification of compounds from the residues of explosions and arson. The methods used for the characterization of compounds include Gas Chromatography – Mass spectroscopy (GC-MS), Gas Chromatography – differential mobility Spectrometry (GC-DMS), Gas Chromatography – Flame Ionization Detection (GC-FID) etc. By employing above mentioned technologies, a qualified and expert forensic investigator can identify the compounds presents in the explosion remnants and fire debris residue at the crime scene.

F. TOOL MARKS AND IMPRESSIONS

A tool is an object used to gain mechanical advantage. Tools include knives, crowbars, hammers, screwdrivers, saws, swords, etc. A tool mark may be any impressions, scratch or abrasions made when contact occurs between a tool and an object. Tool marks can be linked to tools used at a crime scene and ultimately may be used to help find the suspect. Tool used to commit crimes often leaves marks at the scene. Marks can be left in metal, putty, paint, and wood by screw drivers, axes, knives, cutters, drill bites, and chisels among others³²⁵.

Impressions made by shoes, bare feet, teeth, tyres and other objects are helpful to investigators to find the real facts of the crime. As far as possible such impressions are photographed immediately. Impressions fall into three basic classes - patent, latent and plastic. Different methods are used to collect marks and impressions. If it is possible, mark evidences and impressions are collected and preserved for analysis. If it is not possible, casting is a commonly used method of preserving marks and impressions. The common detection and recording methods are -

- i) Photography and image processing,
- ii) Casting and Lifting,
- iii) Electrostatic dust filter,
- iv) Acetate sheet protectors,

³²⁵. MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 114 (CRC Press 2013).

- v) Bindle paper,
- vi) Chemical enhancement, and
- vii) Other specific methods.

G. TOOL MARKS

A tool mark is defined as the impressions left by the contact of a tool or similar object onto a surface. There are different types of tool marks and it is classified as slipped, moulded and combo. For its identification, pattern evidence is very important. Certain defects or patterns may be left on a tool when it is made or used overtime. Some tools are manufactured with unique identification number. Photography is the best way to document tool and tool mark evidence. A microscopic comparison of tool marks is very effective for identification. Also, recently developed ‘tool mark image database’ will help for a better analysis of tools and tool marks.

H. SHOE MARKS

The basic principle behind the forensic investigation is – “whenever he steps, wherever he touches, whatever he leaves, even unconsciously, will serve as silent evidence against him”. From shoe size or foot size possible height and weight of a person can be calculated. If numerous prints are found at a crime scene, investigators can assume the number of people at the crime scene. Photographs of the impressions and prints are taken from several angles.

I. TYRE IMPRESSIONS

Tyre evidence can be used to link a suspect to a crime scene. Tyre size and patterns may be used to identify the type and sometimes even the make and model of the vehicle.

J. DENTAL IMPRESSIONS

Teeth are one of the most distinct and long-lasting features of mammals. It is the hardest substance in the human body. Teeth can be used to determine a rough estimation of a person's age. It is used to identify body remains. Teeth can be used to identify a suspect from bite marks left by a victim or by the suspect at the crime scene, as each person's teeth size and pattern are unique. Also, wherever possible, D.N.A sequencing possibility is explored for the identification.

K. SOILS AND MINERALS

Combination of particles of earth materials soil, rocks, minerals, and fossils occurring by themselves or in conjunction with contamination by other types of minute debris may serve a variety of critical functions³²⁶. Soil forensics is an interdisciplinary field that uses soil biology, chemistry, physics, mineralogy and ecology to help solve crimes. When forensic soil examiners investigate crime, all natural and artificial objects on or near the surface of earth are considered part of the soil. It can be recovered as a heterogenous

³²⁶ · CHARLES R. SWANSON, JR, NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 41 (Goodyear Publishing Company).

mixture that may include sand, rock, clay, black dirt, plant material and other debris. The aim of soil forensic analysis is to link soil, rock or mineral samples taken from the crime scene or from an item such as shoe, clothing, shovel or vehicle with a specific location. Soils are like fingerprints. Each one is different based on chemical, biological and physical combinations, including different colours, minerals, particle size and shape, geology and different combination of bacteria. Soils have unique DNA just like people have. Hence, the variations in soils from place to place makes soil a valuable evidence to prove linkage between a suspect and a crime scene.

Minerals are not randomly distributed across the earth but occur in specific kinds of rock and geologic settings. . The minerals derived from sand, soil and dust at a crime scene can provide informations regarding a specific location.

In the forensic analysis of soils and minerals, the initial step is the macroscopic and microscopic observations. Then the identification is carried out using techniques such as Fourier Transform Infra Red spectroscopy (FTIR), GC-M.S, polarized light, U.V and standard light. The properties like color, particle size, acidity, particle density and mineral composition are also measured. Each soil type has specific characteristics and is unique in their properties. In crimes with no fingerprint or DNA evidence or reliable witness testimony, soil evidence will help the investigators to identify the location and culprit.

L. FIREARMS AND AMMUNITION

A firearm is any type of gun designed to be readily carried and used by an individual such as rifle, pistol or other portable gun³²⁷. The ammunition refers to the material fired, scattered, dropped or detonated from any weapon. It includes bullets or projectiles, cartridge cases, caps and propellants that are used in arms. The terms firearms and ammunition are legally defined further in different countries.

Forensic firearm examination is the process of examining the characteristics of firearms or bullets left behind at a crime scene. The focus of examination is to link bullets to weapons and weapons to individual. Chemistry provides the means to identify bullets and cartridges, restore the obliterated serial numbers, detect bullet holes at crime scenes, visualize powder patterns and detect both organic and inorganic constituents of gunshot residue. Firearms examination relies primarily on microscopical examinations of bullets and cartridges. Fingerprints on the weapon and cartridges are also important to identify the suspects.

The striations, scratches left behind on the bullet and weapon, can be linked to a specific weapon. The striations are unique and are due to the rifling inside the barrel of handguns. This can be examined by using comparison microscope and 3D - imaging technology. The fingerprints recovered, if any, is processed through fingerprint databases (e.g. IAFIS – Integrated Automated

³²⁷ K D GAUR, GAURS FIRE ARMS AND FORENSIC BALLISTIC 12 (Asia Law House, 2019)

Fingerprint Identification System). Firearm databases are very useful to track the weapon's history. Spent cartridges found at a crime scene can be examined for physical evidences such as fingerprints. Chemical analysis is very significant especially for the detection of gunshot residue (GSR) on a suspect's skin and clothing surfaces. Infra-Red (IR) light is used to examine a suspect's hands and cloths to look for gun powder. Neutron activation analysis (N.A.A) is also employed for this purpose. A chemical examination of bullet reveals the information such as type of firearm used and how long ago the bullet was fired. Thus, a firearm or ammunition collected during the course of an investigation from a crime scene could yield vital evidences regarding the nature of crime and suspect.

4.10. SEARCH AND COLLECTION OF PHYSICAL EVIDENCES

Systematic procedures from crime scene to forensic lab consist of Protection, Collection, Identification, Preservation Transmission and disposition of physical evidences. Before collecting the evidences scene of crime should be photographed and video graphed. Careful collection of physical evidence from a crime scene can yield a wealthy of information and in order to satisfy the legal requirement during trial investigating officer must be able to identify each piece of evidence, describe the location and condition of the item , even years after it was collected. Considering the legal importance nothing should be touched or collected with bare hands. Physical evidences depend upon the nature of crime but it is necessary that all obvious material shall be collected from the crime scene. After the material search is done, a

vacuum sweeper equipped with suction attachment may be used and the evidence missed can be collected. The examination of evidence requires comparison with a known, standard or a control sample which is an essential requirement of all examination in the laboratory. The scientific evidence referred in Courts should be based either on some scientific theorem or hypothesis. Such evidence referred in courts is expected to be empirical and properly documented. The documentation must be done in accordance with scientific method which is applicable to the particular field of inquiry. The norms and standards for evidence may vary accordingly. The field of inquiry can be among the natural sciences or social sciences.

The basic principle behind collection of physical evidence is Locard's principle of Exchange which states that "when two objects come into contact, there is always an exchange of material". The investigating officer must take extensive measures to ensure that no evidences has been lost, evidence no matter how minute, has collected which is left by the culprit.

After the collection of evidence investigating officer has to maintain the Chain of custody. The chain of custody means the "transfer of evidence / property from an investigator to another individual, location or agency. It refers to the chronological and careful documentation of evidence to establish its connection to an alleged crime. It shall contain list of evidence, item number, brief description, date, and time, the location, and signature of individuals releasing and transporting the evidence and reason for transfer as needed. It is important to clear in the document the chain of custody from

crime scene to forensic laboratory, to ensure that gathered samples have not been mishandled. The principles behind collection and preservation of physical evidence are maintenance of integrity³²⁸ of exhibit and maintenance of clear chain of possession. Each person in the chain of custody must be responsible for caring, preserving and safekeeping of item of evidence while it is under his control.

In physical evidence the evidence speaks for itself. It is a physical entity with shape, size and measurement. If investigators are not sufficiently trained for collection of samples, samples collected may lead to contamination

4.11. PROCEDURES AND FORMALITIES WHILE DESPATCHING PACKED EXHIBITS TO FORENSIC LAB

The collection and preservation should be proper in such a way no such changes take place between the times when the physical evidences are removed from crime scene to forensic lab.

No physical clue can be replaced if it is once destroyed or altered. The integrity of the article is to be maintained at all costs. It should be labelled with a distinguishing mark so enable the police officer to identify the exhibit whenever necessary. The label should contain a number; police station, district, state; case reference with date and section of law, a short description of the article; date and time of seizure; place of seizure; signature of witnesses; and signature of the officer making the seizure. While packing the material object

³²⁸ Maintenance Integrity means maintenance of original state of clue without any alteration.

he should ensure that any contamination from the packaging itself or from outside material, mechanical damage, risk of damage due to leakage, explosion, loss during transit etc. should not be occurred³²⁹. The exhibits with forwarding notes shall be sent to Forensic lab through concerned Court. Each report should attempt to answer six basic questions relating to crime who, what, where, when, how and why.

Extensive training and experiences are necessary to investigating officers with respect to crime scene investigation. An investigating officer should be highly vigilant for observing even minute things in crime scene. Nothing should go unnoticed and should be courageous, hardworking, sincere and energetic. His objective is to find out truth and not to be prejudiced against people who are accused of the offences. He has to examine the crime scene with greatest possible care and caution. Negligence on the side of investigating officers may leads to destruction of valuable clues forever.

4.12. ADMISSIBILITY OF PHYSICAL EVIDENCE IN COURT OF LAW

The word evidence is derived from the Latin word “Evidere”- ‘to show clearly, to ascertain, to prove’. Webster dictionary defines evidence “as anything legally submitted before competent tribunal to ascertain the truth of any alleged matter of fact under investigation before it”³³⁰. Indian Evidence

³²⁹. CHARLES R. SWANSON, JR, NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 26 (Goodyear Publishing Company). Very small piece of evidence are normally placed in test tubes, while evidence envelopes are used for large articles.

⁹⁵. MERRIAM – WEBSTER, MARIAM WEBSTER’S COLLEGE DICTIONARY (Spring field 2003).

Act, 1872 defines evidence as - “all statements which the Court permits or requires to be made before it by witnesses, in relation to matters of fact under inquiry, such statements are called oral evidence; (2) all documents including electronic records produced for the inspection of the Court such documents are called documentary evidence³³¹. Evidence includes “electronic record” also as the meaning of the term has been expanded after the “Information Technology Act, 2000”³³². The law of evidence is designed to ensure that the Court considers only that evidence which will enable it to reach a reliable conclusion³³³. Electronically recorded conversation is admissible if the conversation is relevant to the matter in issue and the voice is identified and accuracy of the recorded conversation is proved by the eliminating possibility of erasure, addition or manipulation³³⁴.

To understand the true meaning of ‘evidence’ as defined in section 3 of the Evidence Act, the following observation [of the select committee headed by Sir J.F Stephen to which the Evidence Bill was referred for consideration] may be helpful: “The instrument by which the court is convinced of a fact is evidence. It is often classified as being either direct or circumstantial evidence”³³⁵. Circumstantial evidence is also direct evidence indirectly applied. When direct evidence to prove a fact is found to be unreliable the

³³¹. See Indian Evidence Act, 1872, S. 3, Acts of Parliament, 1872, (India).

³³². State of Maharashtra v. Prof. B. Desai, AIR 2003 SC 2053. It was held that Electronic records, such as recording by video conferencing can be produced as evidence in Criminal cases

³³³. Ramesh Chandra Agrawal v. Regency Hospital limited, (2009)9SCC 709 at para 16

³³⁴. R.M. Malkani v. State of M.H, 1973 SCC 399.

³³⁵. M. SREEDHAR RAO, CRIMINAL TRIAL PRACTICE AND PROCEDURE (S. Gogia and Company 1994).

circumstantial evidence bearing upon the fact may be looked into. Direct and circumstantial evidences are used in criminal trial. If circumstantial evidences are trust worthy and established clearly the facts and circumstances which only shows guilt of accused then he can be convicted with the record of proof beyond reasonable doubt³³⁶.

Court will not admit all evidence that comes before it; it must have some bearing on the proposition which is relevant to fact in issue³³⁷. Whatever be the kind of evidence, namely, it may be through the eye witness or by means of a document, and the court has to examine the reliability of the evidence produced. This is called appreciation of evidence. The purpose of appreciation of evidence is to find out whether the statement recorded are correct or. It is the function of separating the grain from the Chaff. Evidence is to be tested by its inherent consistency and inherent probability of the prosecution story. The judge has to use his skill and experience to see the real truth and to rely on that part of the evidence which appeals to him. The principle behind law of evidence is evidence must be restricted to the matter in issue and best evidence must be given in all cases³³⁸.

³³⁶. M. SREEDHAR RAO, CRIMINAL TRIAL PRACTICE AND PROCEDURE 12 (S. Gogia and Company 1994).

³³⁷. The expression "Facts in issue" refers to facts out of which a legal right, liability or disability arises and such legal right, liability, or disability is involved in the inquiry and upon which the Court has to give the decision.

³³⁸. JUSTICE U L BHAT, APPRECIATION OF EVIDENCE IN CRIMINAL CASES; NJA OCCASIONAL PAPER SERIES 6 (National Judicial Academy 2010). The best evidence rule is common law rule of evidence, traced back at least as far as 18th century.

When Evidence is accepted in the court of law, it is said to be admissible³³⁹. As per the evidence Act best evidence is direct evidence, and if it is based on circumstantial evidences, chain of circumstances shall remain unbroken. In order to convict a person on basis of circumstantial evidences circumstances relied upon in support of conviction must be fully established and chain of evidence furnished by those circumstances must be so complete and not to leave any reasonable ground for a conclusion consistent with the innocence of accused³⁴⁰.

Defective investigation is not a ground for acquittal of accused person. Court has to be circumspect in evaluating the evidence when there is a defective investigation³⁴¹. To do so would amount to the loss of faith and confidence of the people in the law enforcing agency and also in the administration of justice³⁴². In this case investigating officer had not made any attempt to find out the foot prints, the pellets, and the cartridges from the crime scene. Even the blood stained earth was not sent for chemical examination. Decision of trial court and High court that accused is guilty also upheld by Supreme Court that even if there is omission or negligence on the side of investigating officers in collection of physical evidence that does not means the case must be end in acquittal of accused person. But the court held that

³³⁹ Admissible evidence, in a court of law, is any testimonial, documentary, or tangible evidence that may be introduced to a fact finder Relevancy and admissibility are not the same All admissible evidence is relevant, but all relevant evidences are not admissible. The question of admissibility depends on rule provided by the law.

³⁴⁰ Laxman Naik v. State of Orissa, AIR 1995 SC 1387.

³⁴¹ Karnel Singh v. State of M. P, 1995 AIR 2472.

³⁴² Dhanaj Singh @ Shera and Ors v. State Of Punjab, 2004 (2) SCR 938.

scientific investigations bring credible evidence and major cause for failure of large number of cases is unscientific poor and faulty, investigation

Today Criminal investigation got wide criticism because serious miscarriage of justice occurs while collecting physical evidences. If the investigating agencies are not well trained in collection of physical evidences there may be loss of evidentiary clues which might result in failure of prosecution to prove the case beyond reasonable doubt.

The Honourable Supreme Court strongly criticized the investigating agencies for inefficient investigation and prosecuting agencies for improper guidance In *Dayal Singh v. State of Uttaranjal*³⁴³. In this case appellant was convicted by trial Court under section 302 read with section 323 and 34IPC which had also been affirmed by High Court.

During the course of trial investigating officer deposed that he didn't know what was happened to viscera and other samples which had collected from hospital and crime scene. The entire statement of investigating officer was doubtful. He deposed that he had noticed 3 injuries on the body of accused. But as per the post-mortem report no injury can be found. The report was fully doubt as to how a healthy person could die without any injury as it a case of assault with dandas. From the above statement it is clear that investigating officer and medical officer failed to perform their duties in accordance with law. There is clear callousness and irresponsibility from both these officers and they misdirected the investigation in favour of accused.

³⁴³ Dayal Singh v. State of Uttaranjal, (2012) 8 SCC 263.

Hon'ble Court framed certain question in order to ascertain whether investigation was defective or not. These questions were, whether defective investigation is due to the acts of omission or commission from the side of investigating agencies? Whether acts of omission or commission adversely affected prosecution case? Whether it is deliberate, unintentional or due to unavoidable circumstances?

While answering these questions in this case Court pointed out that it is a clear example of irresponsible investigation. It is not a case of faulty investigation or unintentional omission or commission. But investigation coloured with motivation and attempt to ensure that suspect can go scot free. Court also added that investigating officer is really responsible for manner and methodology adopted in conducting investigation. In a criminal case it is the responsibility of prosecution to prove the case beyond reasonable doubt but may return its finding if default or omission will not cause prejudice to prosecution case. If default and omission is such that it would have reasonable chance of defeating the case of prosecution the guilty will not escape.

Court expressed that these type irresponsible investigation will be shaken not only the confidence and faith of the people in the law enforcement but also in the administration of justice. Court directed Director Generals of Police UP / Uttarakhand to initiate, speedy, disciplinary proceedings against investigating officers, for the acts of irresponsible deliberate and negligent investigation which result in non-disclosure of cause of death. It also ordered Contempt notice to the Health department for not comply the direction of trial

Court judgement in order to take appropriate direction against medical officer.

The Court referred its earlier ruling in *National Human Right Commission v. State of Gujarat and others*³⁴⁴ and held that “if criminal trial is meant for justice to all, the accused and the society then only law and order will be maintained”. When the prosecution attempt to misdirect the trial on the basis of defective investigation, Court should act objectively and in a correct perspective.

Even though the Hon’ble court set aside judgment of High court, that ruling is very admirable as it is well explained the duties of each wing of the criminal justice system and the importance of evidentiary clues in determining guilt of accused.

*State of Gujarat v. Kishanbhai*³⁴⁵ is a landmark judgment in area of scientific criminal investigation. In this case there were number of deficiencies and short comings from the side of investigation and prosecution. But the learned Counsel for the State expressed confidence, to establish guilt of accused The counsel submitted that even though there were no direct evidence, circumstantial evidence produced was sufficient to establish guilt of accused and no link in the chain was missing.

But the medical examination of accused was not conducted within 24 hours and the prosecution was silent about that aspect. The lapses from the

³⁴⁴ National Human Right Commission v. State of Gujarat and others, (2009) 6 SCC 342.

³⁴⁵ State of Gujarat v. Kishanbhai, 2014 5 SCC 108. Where a six-year-old girl child was raped and murdered and her legs were severed, the trial court convicted the accused for death sentence. But on appeal the judgement was reversed. Against the judgement of High Court state appealed to Supreme Court. . Supreme Court was of the view that victim was denied justice due to the inefficiency of State agencies.

side of investigation and prosecution resulted in omission of vital link in the chain of events. The doctor who conducted medical examination of victim had not been examined as prosecution witness. This too shows that vital link in the chain of events have broken and prosecution failed to establish the guilt of accused. If DNA test was which would give clear picture whether blood of victim Gomi was in fact with that of accused. The Court pointed out that,

We therefore direct that, upon completion of the investigation in a criminal case, the prosecution agency should exercise its independence of mind and require that any deficiencies be corrected, if necessary by requiring further investigation. It should also be ensured that the evidence gathered during the investigation is truly and faithfully used, confirming that all relevant witnesses and evidence to prove the charges are conscientiously presented during the trial of the case. Only persons with sufficient evidence will have to suffer the rigors of criminal prosecution. By following the procedure referred to above, in most criminal prosecutions, the agencies concerned will be able to establish the guilt of the accused successfully.

If DNA test of victim was conducted it would give a clear picture whether blood of victim Gomi was in fact with that of accused. Court vehemently criticized the investigating agency and held that,

In spite of so much advancement in the field of forensic science, the investigating agency seriously erred in carrying out an effective investigation to genuinely determine the culpability of the accused-respondent Kishanbhai.

The Court has instructed the Home Department of each State to examine all orders of acquittal and to record the reasons for failure of each prosecution and also-

- ❖ The Standing Committee of Senior Police Officers and the Public Prosecutor's Office should be given the above-mentioned responsibility.
- ❖ Conduct training programs for junior investigators/prosecution officials.
- ❖ Conduct refresher training programs for senior investigators and prosecutors.
- ❖ The content of the course will be reviewed annually by the above-mentioned committee. The review by the Committee will be based on fresh input, including emerging scientific investigative tools, judgments of the Courts
- ❖ The training program referred to above shall be put in place within 6 months.
- ❖ If any lapses are again committed by officials, they cannot plead innocence and will be held liable for departmental action.
- ❖ The official concerned may be withdrawn from investigative duties on a permanent or temporary basis, taking into account the seriousness of the matter. The actions will depend solely on his guilt.

Court has concluded the judgment by saying that

Every acquittal should be understood as a failure of the justice delivery system, in serving the cause of justice. Likewise, every acquittal should ordinarily lead to the inference, that an innocent person was wrongfully

prosecuted. It is therefore, essential that every State should put in place a procedural mechanism, which would ensure that the cause of justice is served, which would simultaneously ensure the safeguard of interest of those who are innocent.

Analysis of the above decision make it clear that if cases are based on circumstantial evidences circumstances from which the inference of guilt is to be drawn, been fully established by beyond a shadow of doubt otherwise it will end in acquittal of accused.

The scientific evidences based on forensic science have vital role in determining guilt of accused which has been discussed in *Daramdeo Yadav v. State of U.P*³⁴⁶. The case was related to gruesome murder of 22 year old foreigner, Diana, in which trial Court awarded death sentence which had also been confirmed by High Court The accused was tourist guide and the case was fully based on circumstantial evidence. While considering this case Court held as follows. Circumstantial evidence is evidence of relevant fact from which one can by process of reasoning, infer about the existence of fact in issue or factum probandum³⁴⁷. The Court has referred its earlier judgement in *Hanumant, son of Govind Nargundkar v. State of Madhya Pradesh*³⁴⁸ and held as follows.

Each and every incriminating circumstance must be clearly established by reliable and incisive evidence, and the circumstances so proven must form a chain of events from which the only irresistible conclusion on the guilt of the accused can be drawn safely, and no other presumption of guilt is possible. Even when there is no eye-

³⁴⁶ Daramdeo Yadav v. State of U.P, 2014 (5) SCC 509.

³⁴⁷ Daramdeo Yadav v. State of U.P, 2014 (5) SCC 509 at para14.

³⁴⁸ Hanumant, son of Govind Nargundkar v. State of Madhya Pradesh, AIR 1952 SC 343.

witness to support the criminal charge, but prosecution has been able to establish the chain of circumstances which is complete leading to inference of guilt of accused and circumstances taken collectively are incapable of explanation on any reasonable hypothesis save of guilt sought to be proved, accused may be convicted on the basis of such circumstantial evidence.

The importance of scientific techniques in investigation has well discussed in this judgement

Scientific evidence includes so-called hard science, such as physics, chemistry, mathematics, biology, and soft science, such as economics, psychology, and sociology. Opinions are drawn from persons with scientific, technical or other specialized knowledge whose competence, experience, training or education may help the Court to understand the evidence or to determine the facts in question. The Court often has to deal with circumstantial evidence and scientific and technical evidence³⁴⁹.

The Court has also referred the decision of U.S. Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc*³⁵⁰. In order to explain the importance of science to detection of crime and held as follows:-

“Science is not an encyclopaedic body of knowledge about the universe. Instead, it represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refinement.”

Court has also observed that

The emergence of new types of crime and their level of sophistication, the traditional methods and tools have become outdated, hence the need

³⁴⁹. Hanumant, son of Govind Nargundkar v. State of Madhya Pradesh, AIR 1952 SC 343 at para 29.

³⁵⁰. Daubert v. Merrell Dow Pharmaceuticals, Inc, 509 U.S. 579 (1993)

to strengthen forensic science for the detection of crime. Oral evidence depends on a number of facts, such as observational power, humiliation, external influence, forgetfulness, etc., while forensic evidence is free from these infirmities. The judiciary should also be equipped to understand and deal with such scientific material. The emergence of new types of crime and their level of sophistication, the traditional methods and tools have become out-dated, hence the need to strengthen forensic science for the detection of crime. Oral evidence depends on a number of facts, such as observational power, humiliation, external influence, forgetfulness, etc., while forensic evidence is free from these infirmities. The judiciary should also be equipped to understand and deal with such scientific material. Constant interaction between judges and scientists, engineers would promote and broaden their knowledge to deal with such scientific evidence and to deal effectively with criminal cases on the basis of scientific evidence. We do not argue that scientific evidence is a sure test in all cases, but only stress the need to promote scientific evidence in order to detect and prove crimes over and above other evidence.

In this case though prosecution had established the chain of circumstances which was complete leading to inference of guilt of accused except the manner in which committed was a barbaric manner. Due to lack of evidence with regard to the manner of committing crime death sentenced has been reduced to 20 years rigorous imprisonment.

Forensic science plays very crucial role in establishing evidence of crime, identifying the suspect and ascertaining the guilt of accused. If it is collected and analysed properly it would help to take right path for

investigation from crime scene to court room, which is more reliable than testimonial evidence.

Skilful collection of material evidence can be helpful in bringing the real unvarnished truth which has been observed by the Honourable Supreme Court in *Shreemad Jagadguru v. State of Karnataka*³⁵¹. In this case it was held that DNA profiling can be done by the medical practitioner from the material taken from person of accused and the material collected during the course of investigation. If not collected properly real truth cannot be found out.

Scientific examination of evidence answers whether a crime been committed, whether it was accidental, suicidal or homicidal³⁵². It also answers how and when was committed, at what time, with what type of weapon. By using scientific examination it may be possible to establish connection between some physical evidence associated with the crime and some personal characteristic of the collection accused³⁵³. Mere defects or lapse on part of investigation cannot be a ground of acquittal. It is the obligation of court to scrutinize the prosecution evidence and to find out whether such evidence is reliable and whether it will affect the object of finding out the truth *Golam Sarwar and others v. State of West Bengal*³⁵⁴.

³⁵¹ *Shreemad Jagadguru v. State of Karnataka*, 2014 SCC Online kar 5639.

³⁵² H. J. WALLS, *FORENSIC SCIENCE- AN INTRODUCTION TO SCIENTIFIC CRIME DETECTION 9* (Universal Law Publishing Co. Pvt. Ltd 2002).

³⁵³ For e.g., blood, hair, fingerprint, DNA etc. It also establishes connection between scene of the crime and injuries or marks linked with the accused.

³⁵⁴ *Golam Sarwar and others v. State of West Bengal*, CRA 682 of 2010 of Calcutta High Court decided on 16th May, 2014.

In *Veerendra Kumar Ohri v. Union of India*³⁵⁵, the court observed that lack of scientific knowledge of investigation and non-utilization of scientific method of investigation would result in low rate of conviction and implication of innocent accused person.

Even if scientific techniques and devices are need of the day. But at the same time there is chance for tampering and alteration and is difficult to detect and therefore it has to be received with great caution³⁵⁶. In *Ajar v. state*³⁵⁷ it was held that every Mobile Handset has an exclusive International Mobile Equipment (IME) identity number. And every time a mobile handset is used for making a call, besides the numbers this IME number is also recorded by the service provider. In the instant case, the mobile owned by deceased was used by accused and was recovered from his possession. It was held to be evidence of conclusive nature and even there is any service discrepancy in oral evidence it would be yield to scientific evidence.

In spite of all round developments of forensic science our investigating officers are still seem to be unaware of method of collection of physical evidences. The value of even the most carefully recovered and preserved evidence can be lost If the chain of custody is not properly maintained. If investigating officers fails to collect relevant evidence or allows them to be contaminated or does not provide correct samples for comparisons the findings of forensic scientist will be useless or be helpful to the culprit.

³⁵⁵ *Veerendra Kumar Ohri v. Union of India*, W P (C) NO. 341/2004,

³⁵⁶ *Tukaram S. Dighole v. Manikrao Shivaji Kokate*, (2010) 4 SCC at para 329.

³⁵⁷ *Ajar v. state*, (2011) 10 SCC 675.

Most of the advanced countries criminal investigation is conducted by crime scene investigators who acquire in-depth training in scientific investigation. But in India police officers due to lack of training and improper scientific knowledge collect the evidences in improper way which may cause contamination or losing of its evidentiary value

From the analysis of above cases it is clear that investigating agencies has to use modern methods for conducting investigation. They should be thorough with scientific technologies and very skilful in collection of evidences. In Plethora of cases, Judiciary has observed that some of the important factors which would affect quality of investigation are lack of equipment's, weaponry used which are obsolete, lack of coordination between the internal departments, training standards which are very low and do not take into consideration the use of modern technology.

4.13. FORENSIC SCIENCE LABORATORIES

Forensic science plays an important role in the criminal justice system, especially in the laboratory investigation by examining physical evidences scientifically. Proof of guilt or innocence is frequently determined by the results of forensic evidence analysis. Lack of forensic awareness among the police officers seriously disturbs the working of the FSL. The investigating officers often handle the exhibits without taking proper precautions and thereby

destroy its evidentiary value. They show utter carelessness in depositing the exhibits at Forensic lab³⁵⁸.

Main objectives of forensic laboratories, is to contribute scientific assistance to agencies involved in criminal investigation, to examine the crime related exhibits referred by the police, judiciary, and other government departments and undertaking and give opinions on scientific investigation of crime and to help in recognizing, collecting evidences, properly from scene of crime, its proper packing, sealing and forwarding to laboratory for examination along with list of queries. It also provides knowledge and training about the role of forensic science to police personnel and judicial officers and other related officers³⁵⁹.

Forensic science laboratory is the main scientific institution to provide scientific assistance in criminal investigation. It has generally all major scientific departments / divisions: Chemistry, Physics, Biology, Ballistics, Explosives, Toxicology, Narcotics, Serology, DNA Profiling, Forensic Psychology, Lie Detector Unit, Voice Analysis, Photography, Instruments, Computers, and Crime Scene Teams.

The main institutions which provide scientific help in scientific criminal investigations are -

³⁵⁸. N R Madhava Menon, Criminal Justice Reform; A Fresh Look on Malimath Committee Recommendations, XXXIX JCPS 1-4 (2002)

³⁵⁹. MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 119 (CRC Press 2013).

Forensic Science Laboratories³⁶⁰, Chemical Examiners Laboratories³⁶¹, Government Examiners of Questioned Documents³⁶², Finger Print Bureaus³⁶³, Department of Explosives³⁶⁴ Serologist to the Government³⁶⁵.

Besides there is CID Scientific Sections, Mobile Scene of Crime Laboratories, Computer Division in Police Departments, University Departments, especially those teaching Forensic Science, Medico-legal Institutes, Forensic Medicine Departments in Medical Colleges, Consultancy

³⁶⁰ Forensic science laboratory is the main scientific institution to provide scientific assistance in criminal investigation.

³⁶¹ The institution of Chemical Examiners' laboratories was the first step towards scientific criminal investigation. The main functions of these laboratories were:

- To ascertain poisoning, to identify poison, to determine the quantity administered and to identify if the person had died of poisoning.
- To identify biological stains of all types but mainly blood and semen stains.

³⁶² Government Examiner of Questioned Documents is one of the oldest institutions to help Scientific criminal investigation (established for the first time in Kolkata in 1904, shifted to Shimla in 1906). The document examiners assist the scientific criminal investigation mainly to find if the document is: genuine or fake, signatures valid or forged, document altered fraudulently or not; is one of the alleged age or not.

³⁶³ The identification of individuals through their fingerprints started in the end of the nineteenth century in India. The fingerprint experts assist the scientific criminal investigation in the following ways:

- Collect, classify and store the fingerprint record.
- Eliminate the data of the dead persons.
- Search and locate fingerprints of a given person if it exists in the records.
- Compare the crime and the specimen fingerprints.
- Visit the scene of crime to locate; develop latent fingerprints, collect them and ultimately compare the fingerprints found at the scene with the specimens, fresh or old (from the records).
- Give evidence in courts (or on commission) whenever required.

³⁶⁴ Collects evidence from the scene of explosion, identify the explosives device used in the explosion to collect, identify and dispose of the live explosive devices; and also provide guideline for further investigations.

³⁶⁵ The Serologist to the government of India was established in 1910 for the first time. It examined biological stains, particularly blood and semen stains. The institution still continues with diminished utility as almost all the Forensic Science Laboratories have their own serology division where the same work is being done with perhaps greater efficiency.

Services provided by private individuals and organizations, especially those organized by retired specialists³⁶⁶.

The forensic expert must be aware of the principles and techniques of physical and natural science for the analysis of clues recovered during crime scene investigation. Forensic report shall contain the laboratory case number, reference number, F.I.R number and letter number, the mode of receipt, the date, description of content, identification marks, seal and signature. The description of the exhibits, identification marks, signatures of the initials are also included in the report. The report shall also contains all details regarding date of commencement of examination and completion, nature of exhibit, name of examiner, his qualification, designation experiments carried out, his observations and conclusions drawn and mode of dispatch. As the report is utilized by non-technical person the report should be concise but sufficient to be intelligible to prove the conclusions arrived at. It should be demonstrated with photographs, illustrations sketches and experimental data's.

4.14. CHALLENGES FACED BY THE LABORATORIES

The Function of forensic laboratory is to help the investigating agencies by providing scientific evaluation of physical evidence present at the scene of occurrence. But today Forensic science laboratories are not adequate enough to cater to the needs of investigating officers.

³⁶⁶. B R SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 12 (Universal Law Publishing 2006).

The main problem faced by the forensic lab is acute man power shortage. Due to shortage of man power there is delay in receiving report from forensic lab. Over 40 % posts in forensic laboratories are vacant. Government submitted that there are six Central Forensic Science Laboratories i.e., Bhopal, Chandigarh, Guwahati, Kolkata, Hyderabad and Pune. Out of the sanctioned strength of 450, posts lying vacant are 164. The sanctioned strength of forensic experts under state forensic laboratories is 7,582.but only 3,685 were filled.

The Hon'ble Supreme court in *Dilawar v. State Of Haryana*³⁶⁷ quoted earlier decision of Supreme Court in *Hussainara Khatoon & Others v. Home Secretary, State of Bihar, Patna*,³⁶⁸, where the Court considered the need to have the scientific and forensic laboratories and trained manpower in order to improve the progress of investigation. Court also added that this observations were made almost 40 years back, even today, in the entire country there are only seven Central Forensic Science Laboratories and sanctioned strength of forensic experts under state forensic laboratories are only 7,582.and 3,685 to be filled.

The enormous delay in obtaining expert opinion has resulted in the lack of interest by the police officers in seeking scientific opinion. In certain cases charge sheets are submitted without getting the report. Honourable Supreme *Neelam v. State of Haryana*³⁶⁹, held that completion of investigation without

³⁶⁷: *Dilawar v. State of Haryana* on 16 July, 2019

³⁶⁸: *Hussainara Khatoon & Others v. Home Secretary, State of Bihar, Patna* (1980) 1 SCC 108.

³⁶⁹: *Neelam v. State of Haryana* 2018 SCC online P & H 2044.

considering outcome of Forensic Science Laboratory cannot be considered as a fair investigation.

As the instruments used for scientific analysis are very costly it will take a lot of time for getting report. There is no particular standard to verify the result of forensic experiments. It requires wide knowledge and intensive study. As a result even if the investigating officer finds several types of physical evidence he may be less interested to refer to the laboratory. Due to the absence of adequate number of staff forensic experts are burdened with huge number of cases. Due to poor funding to Forensic lab many forensic scientists are not properly trained. Many people after completing this course dislike this job there due to pressure and poor working condition.

Quality of evidences depends upon collection of evidence. It needs high level of accuracy and precision , even if there is any minor error, the result may be wrong, However the value of even the most carefully recovered and preserved evidence can be lost if the chain of custody is not properly maintained. If investigating officers fails to collect relevant evidence or allows them to be contaminated or does not provide correct samples for comparisons, the results may be wrong.

Shimla rape and murder case is a best example. In this case a student of 10th standard was raped and murdered in Shimla by accused Rajendar. The dead body of victim was recovered two days after and six persons were arrested in connection with this offence. Sad thing is that DNA sample collected from the crime scene did not match sample found in the laboratory.

Supreme Court emphasised that there is an urgent need for more designated Forensic Science Laboratories (FSL) across the country to avoid delay in trial and for early disposal of cases covered by the Protection of Children from Sexual Offences (POCSO) Act.

India's first advanced Forensic lab, Sakhi Suraksha Advanced DNA forensic lab, dedicated for Crimes related to women was set up in 2018 in Central Forensic Science Lab. This advanced lab in par with international standard will contribute to a detailed analysis of pending sexual assault cases in the country. The lab has been set up as a model and will be replicated in other parts of the country soon .Five more such advanced forensic labs will come up in Mumbai, Chennai, Guwahati, Pune and Bhopal in the next 3 months bringing total minimum annual handling capacity of labs to 50,000 cases.

Scientific investigation depends upon crime scene investigation and laboratory analysis of clue materials. Hence forensic expert should be unbiased, competent and highly professional. If the quality of evidence and its analysis is poor the criminals may be acquitted. The laboratories must deliver forensic service with quality; time bound and credibility to provide protect and promote justice and peace.

For ensuring efficient working of laboratories following recommendations can be suggested

- ❖ In order to ensure good laboratory principles A disciplined wise Scientific Task force in lines of Technical Working Group of

USA,³⁷⁰ to deliberate and bring out standard Operating procedures (SOP) Manuals are necessary. To verify the result of a forensic experiment now we have no particular standard. It requires wide knowledge and intensive study.

- ❖ There should be mandatory certification of Forensic professionals
- ❖ Every Forensic Laboratory should be accredited by National Accreditation Board
- ❖ Research and Development in Forensic science must be promoted and encouraged to cope up with the recent technologies used in criminal investigation
- ❖ Laboratory environment is one of the crucial factors to ensure good forensic practices. Hence, best infrastructure is indispensable for highest quality forensic services.
- ❖ Proper training shall be given to forensic experts.

4.15. FORENSIC SCIENCE DEVELOPMENT RECOMMENDATIONS BY VARIOUS COMMISSIONS

On the recommendation of Dir. V.K. Street, a Forensic scientist from Department of Forensic Edinburgh, United Kingdom, who visited different

³⁷⁰. Recommendations of “Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council -Strengthening Forensic Science in the United States”: A Path Forward <https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf> (last viewed on Dec. 13, 2020).

institutions during 1972 and submitted a report, Government of India created a post of Chief Forensic Scientist in the Ministry of home affairs to look after its Forensic Science activities and to play a whole time attention for the development of forensic science in India. In 1983, the prime Minister preferred the matter to Scientific Advisory Committee to the Cabinet. The committee noted that very powerful tools and scientific techniques were available which could be utilized by various law enforcement agencies. Based on the observations of Scientific Advisory Committee promotion of research in the field of Forensic Science was introduced in the 7th Five year plan. National Police Commission constituted by Government of India under the Chairmanship of Mr. Dharam Vera, former Governor recommended the strengthening of forensic science laboratory facilities and scientific aids to the detection of crime. Implementation of these recommendations would greatly improve the quality and quickness of investigations at different levels³⁷¹. The Malimath Committee also recommended that more well-resourced laboratories should be established to handle DNA samples and evidence, as well as particular rule should be enacted giving guidelines to the police setting uniform standards for attaining genetic information and generating adequate safeguards to prevent misuse of the same³⁷². The Report of the Committee on Draft National Policy on Criminal Justice highlights that guidance, accreditation, standard setting, professionalism and research and development of Forensic science should

³⁷¹ Mr Dharam Vera, *Report of National Police Commission*, Government of India, 1980

³⁷² Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government of India, Ministry of Home Affairs, 2013 p.29 at Para 7.6.12.

receive adequate attention in the policy framework³⁷³. Lately, Justice Verma Committee laid down the need for proper storage and preservation of DNA samples, especially in sexual assault cases³⁷⁴

4.16. DIRECTORATE OF FORENSIC SCIENCE SERVICES

Based on the recommendations of National Human Right Commission and Padmanabhaiah Committee on Police reforms directorate of Forensic Science Services was established in 2002 under Ministry of Home Affair, govt. of India. Under its control six forensic central Forensic science laboratories are established. The main objective Director of Forensic Science Services is to render High quality forensic services to justice3 delivery system. Each state has forensic laboratories³⁷⁵.

Forensic department is not an independent body; it works under the Ministry of Home affairs. Hence there is chance for pressure and influence from all sources and cannot work independently. It depends Police department for financial assistance and infrastructure. What is indeed then is Forensic Laboratories Act. The object of enacting a Forensic Laboratories Act is to provide for the establishment and regulation of forensic science laboratories in India and to provide a uniform standard of procedure in assisting scientific investigation. It should also contain provisions related to the procedure to be

³⁷³: Dr. N R Madhava Menon, *Report of The Committee on Draft National Policy On Criminal Justice*, Government of India, Ministry of Home Affairs, 2007.

³⁷⁴: Dr. N R Madhava Menon, *Report of the Committee on Amendments to Criminal Law*, Government of India, Ministry of Home Affairs, 2013.

³⁷⁵: In Kerala it was established in 1961 in Thiruvananthapuram and in each district have mobile laboratory units. They vary in number, staff structure and in the administrative control. Every mobile unit have usually forensic scientist, a fingerprint expert and a photographer

followed when receiving a sample, time limitation of giving results, conservation of samples in laboratories, its functioning, responsibilities, accountability, the mode of giving results and procedure for disposing the materials. Penal sanction is to be introduced whereby any officer tampers with the process of forensic Analysis. Under this, a Regulatory board is to be set up. All forensic laboratories are to be brought under this board.

4.17. CONCLUSION

Due to the advancement of Science and Technology, the concept of crime as well as the modus operandi for commission of crime has changed. For combating such type of crime ordinary and obsolete method of investigation is not tenable in the present day situations. Besides that, crimes are committed secretly in a well-planned manner so that there may not be any direct evidence. Crimes which have no eyewitness or direct witness are known as circumstantial case, and in those cases scientific investigation becomes inevitable. The advances in science and technology are increasingly enhancing the role of forensic science and scientific aids in criminal investigation. It proves scientifically based information through the analysis of physical evidence, the identity of the culprit through personal clues like fingerprint, footprints, blood drops or hair, mobile phones or any other gadgets, vehicles and weapons.

Different types of forensic evidences require different methods for collection, packaging, handling and forwarding the evidence to laboratories. If the investigating officer is not thorough with collection of physical evidences, about its preservation, and its packaging, how to keep the integrity and identity

of clue material, the laboratory techniques used by forensic scientist will be futile. In spite of all round developments of forensic science our investigating officers are still seem to be unaware of method of collection of physical evidences. Successful and fair administration of justice depends on several factors including sound initial investigation, professional evidence collection and its scientific analysis along with its interpretation and finally presentation of the case in the court of law by the prosecution.

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CHAPTER V

SCIENTIFIC TECHNIQUES IN CORE INVESTIGATION WITH SPECIAL REFERENCE TO DNA PROFILING

“Nothing matters but the facts, Without them, the science of criminal investigation is nothing more than a guessing game”.

-Blake Edwards

5.1. INTRODUCTION

Science and Technology plays a vital role in the modern mankind. With the progress of science and technology, now crimes have become more complex in nature. Hence it becomes very difficult for the investigating agencies to detect the criminals on the basis of eye witness or direct evidence alone. More over most of the evidences which are available from the crime scene are invisible to ordinary eyes. Advanced scientific technologies assist police officers to identify the perpetrator and the victim, to understand the nature and motive of the crime, to establish the link with the victim, offender, and crime scene. DNA evidence becomes a predominant forensic technique for identifying criminals in the circumstances where biological evidences are left at the crime scene. Among the various techniques of scientific investigation, DNA is the most powerful tool.

The ability of DNA to point out a specific person makes it a powerful tool that can be used in the investigation of a crime. From the time DNA was introduced, plethora of research and studies has been conducted on it, to make it reliable scientific evidence. Many countries across the world have incorporated DNA profiling and DNA data bases into their criminal justice system, which in effect lead such countries to get higher conviction rates and overall improvement in their criminal justice system. DNA evidence has been accepted by the courts in India even in the absence of specific legislation.

5.2. DNA - MEANING AND SCOPE

DNA is the abbreviation of the complex term Deoxyribonucleic Acid. Oxford Advanced Learner's Dictionary defines as "DNA is the deoxyribonucleic acid, the chemicals in the cells of animals and plants which carry Genetic information"³⁷⁶. It is the hereditary material in humans and almost all other organism and is present inside the nucleus of all the cells except human red blood cells³⁷⁷. It carries genetic information and passes them from one generation to the next and is thus termed as genetic blue print. It may be found either in the nucleus or in the mitochondria of the human cell and is also unique. Each Chromosome contains 2 million DNA molecules³⁷⁸.

³⁷⁶. A.S. HORNBY, OXFORD ADVANCED LEARNER'S DICTIONARY OF CURRENT ENGLISH 340 (Oxford University Press 1996).

³⁷⁷. The technique of DNA fingerprinting was first developed in 1984 by Dr. Alec Jeffrey from Great Britain. Hence the year 1985 is considered to be the most important year as far as the contemporary advances in forensic science is concerned.

³⁷⁸. See B.R. SHARMA, SCIENTIFIC CRIMINAL INVESTIGATION 155 (Universal Law Publishing Company Pvt Ltd 2006).

Every individual carries DNA in a proportion that half from father and half from the mother, hence this genetic material is same and identical in the whole body of an individual. No two individuals share the same DNA pattern except identical twins. It is stable and does not change in the life time. It is possible to compare the old samples of DNA with latest ones due to its stability³⁷⁹. “It is often referred to as the blue print of life”. Each human nucleus contains almost 5 pictograms of DNA. An average human being contains about 250 grams of DNA. It can be usually obtained from any biological material such as semen, blood, hair, saliva, skin, bones etc³⁸⁰. There are approximately 37.2 trillion cells in the human body. Almost all of them contain D.N.A. All cell that having a nucleus contains DNA. During the process of human reproduction, the DNA from the parents is transferred to the offspring. How and why this happens is stated by the Science of Genetics³⁸¹.

DNA is a molecule which encodes the genetic information in all living organisms. DNA genotype can be obtained from any biological material such as bone, blood, semen, saliva, hair, skin, etc. Now, for several years, DNA profile has also shown a tremendous impact on forensic investigation. Generally, when DNA profile of a sample found at the scene of crime matches with the DNA profile of the suspect, it can then be concluded that both the samples have the same biological origin i.e., belongs to the same person. DNA

³⁷⁹ Dr. Paramjith Kaur, *DNA Fingerprinting And Its Evidentiary Value*, Cri L J, 97 (2006)

³⁸⁰ Dharam Deo Yadav v. State of UP, (2014) 5 SCC 509.

³⁸¹ Chandra Devi v. State of Tamil Nadu, C A No 895 of 1997 of Madras High Court.

profile is valid and reliable, but variance in a particular result depends on the quality control and quality procedure in the forensic laboratory³⁸².

Over a period of time DNA has become powerful tool in the field of crime investigation and is beneficially applied to civil and criminal cases. DNA evidence is of high value in solving criminal cases as that DNA evidence collected from a crime scene can be linked to a suspect or can eliminate a suspect from suspicion. It decides the characteristics of person such as their colour, type of hair, nail and so on. As all cells in the human body contain the same set of DNA, the results of the biological samples which obtained from hair, skin, blood or nail, will be the same. DNA evidence is the most known reliable evidence. Just like finger prints, each person has a unique DNA fingerprint. Although fingerprint can be altered by surgery, DNA fingerprint cannot be altered by any known treatment³⁸³. One of the main benefits of DNA technology is that it is so sensitive as to be able to place a suspect at the scene of crime with just a few skin cells extracted from a sterile forensic swab or from a scrapped sample³⁸⁴.

5.3. SIGNIFICANCE OF DNA EVIDENCE

- DNA of every individual is same except identical twins
- It does not change with age
- DNA is found in every living being.

³⁸². Anil @ Anthony Arikwamy Joseph v. State of Maharashtra, (2014) 4 SCC 69. Para 18

³⁸³. See Abhijeet Sharma, *DNA Fingerprinting – A Legal Perspective*, Cri L J, 148 (2004)

³⁸⁴. ANNAMMA JOHN, *ADVANCED TECHNOLOGY IN FORENSIC INVESTIGATION* 89 (Cosmo Books, 2019)

- It can be extracted from any body cells of an individual.
- Sources of DNA may be Blood and blood stains , semen and semen stains , Hair and hair roots , Fingernail clippings , Tooth canal root pulp, Body tissues and body organs; Bone marrow and bones; Saliva; Urine, Foetal material; Post-mortem samples; Faecal matter , Blood samples in blood relationship tests; and Other body fluids.
- It is stable than any other material
- It is much resistant to environmental conditions like temperature, moisture heat etc.
- Even a small amount of sample is enough for DNA analysis.

5.4. DNA PROFILING

As far as the recent advance in forensic science is considered, the year 1985 is considered to be the most significant year. The first forensic or legal application of DNA testing occurred in the year 1986 in England by Sir Alec Jeffrey in the famous Collins case. Since then DNA technology has continued to be rapidly evolved. The complete analysis of DNA is known as DNA Profiling. DNA profiling has a peculiar application to criminal law because of the possibility that it determines whether blood or semen found in the scene of crime came from a person who is suspected of having committed the crime. There are numerous types of procedures adopted for forensic identification of an individual. Two main types of such testing systems are Restriction Fragment Length Polymorphism (RFLP), and Polymerase Chain Reaction (PCR) testing.

RFLP testing process requires larger amounts of DNA³⁸⁵ whereas PCR³⁸⁶ testing require smaller amount of DNA sample. However this test is highly sensitive and slightest contamination at the scene of crime can alter the results. Now the RFLP has been replaced by the PCR based testing as it requires larger amount of DNA for testing. The tremendous contribution which PCR method has made in many areas related to molecular biology led to its designation as “Molecule of the year 1989”³⁸⁷.

A DNA profile is a record created on the basis of DNA samples made available to forensic experts. Creating and maintaining DNA profiles of the offenders and suspects are useful practices, because newly obtained DNA samples can be readily matched or compared with existing profiles that are already in the possession of law enforcement agencies. Matching of DNA samples is emerging as a vital tool for linking suspects to specific criminal acts³⁸⁸. DNA Fingerprinting can be used not only for securing the conviction but also to exonerate persons who would have been wrongfully accused or convicted. The national Institute of justice under the guidance of former Attorney general Janet Reno issued a report in 1996 entitled, Convicted by

³⁸⁵. ABHIJEET SHARMA, GUIDE TO DNA TESTS IN PATERNITY DETERMINATION & CRIMINAL INVESTIGATION 9 (Wadhwa and Company 2007).

³⁸⁶. Polymerase Chain reaction.

³⁸⁷. ABHIJEET SHARMA, GUIDE TO DNA TESTS IN PATERNITY DETERMINATION & CRIMINAL INVESTIGATION 17 (Wadhwa and Company 2007)

³⁸⁸. Selvi v. State of Karnataka, (2010) 7 CC 263; This case is also referred in Sr. Sephy v CBI, 2020 (1) KLT 763.

Juries Exonerated by Science stressing the importance of use of DNA evidence to establish innocence after trial³⁸⁹.

5.5. DNA PROFILING IN CRIME SCENE INVESTIGATION

Since the advent of fingerprint identification, DNA technology has got serious attention in criminal investigation. DNA can be collected from two sources, viz., human bodies and small samples of bodily material. Direct deposit of DNA may come from Suspects DNA deposited on victim, object, location, Victims DNA deposited on suspect, object, location, suspect or victims DNA deposited on a witness, witness DNA deposited on an object, or location. In secondary transfer, blood, semen, body tissue, hair, saliva, or urine is transferred to a victim, suspect, witness, object or location through an intermediate medium³⁹⁰. The technique of DNA fingerprinting has been acknowledged as the greatest breakthrough in forensic science because of the sheer magnitude of its impact on science and law³⁹¹. It has become established that DNA evidence can solve particularly difficult cases, when all the investigative techniques failed. DNA techniques provide clues to the investigative agencies when there is no witness to crime. Small amount of biological samples are enough for effective DNA analysis. Even a smaller fraction makes one person different from other. As compared to ordinary

³⁸⁹. ALEX SAMUEL & DR. SWATI PARIKH, DNA TESTS IN CRIMINAL INVESTIGATION AND PATERNITY DISPUTES (A MODERN SCIENTIFIC TECHNIQUE) 151 (Dwivedi & Company 2009)

³⁹⁰. ABHIJEET SHARMA, GUIDE TO DNA TESTS IN PATERNITY DETERMINATION & CRIMINAL INVESTIGATION 117 (Wadhwa and Company 2007)

³⁹¹. Ambiga singh & Tanya Agarwal, *The double Helix unraveled Evidentiary aspects of DNA fingerprinting*, Cri L J, 46 (2006).

fingerprinting DNA fingerprinting is much more reliable, as ordinary fingerprinting is not always available in crimes scene. DNA profiling is complementary to conventional blood grouping in a rape investigation because blood group substances are contained within the seminal fluids, while DNA contained in the sperm, which can be separated and kept frozen³⁹².

When there is difference between medical report and DNA report, which of the two can be taken as evidence was a question answered by the Supreme Court in *Santhosh Kumar Singh v. State through CBI*³⁹³. In this case Priyadarsini Matoo, a 25 year old law student of the in the Delhi University was raped and murdered by her senior student. In the post mortem report there was no evidence of rape but DNA test confirmed it. The trial court acquitted the accused relying on postmortem report and rejected DNA test. The findings of lower court was reversed by the High Court by observing that though there appeared to be no physical evidence of rape on the body but from the DNA test conducted on the vaginal swabs and slides and underwear of the deceased and blood sample of appellant, it was clear that rape was committed by the appellant³⁹⁴. High Court also held that it would be dangerous doctrine for the court to discard the evidence of an expert witness by referring to certain text and books without putting those text to the expert and taking his opinion there on. High court also opined that” court cannot substitute its own opinion for that

³⁹² Subash Chandra Singh, *DNA Profiling and the Forensic use of DNA Evidences* in criminal proceeding LII JILI (2011).

³⁹³ Santhosh Kumar Singh v. State Through CBI, (2010) 9 SCC 747

³⁹⁴ Santhosh Kumar Singh v. State Through CBI, (2010) 9 SCC 747 at para 28.

of an expert more particularly in a science such as DNA profiling which is a recent development³⁹⁵.”

On appeal the High Court reconsidered the DNA report and convicted accused under Sections 302 and 376 of IPC. In the appeal filed by the respondent, the Supreme Court confirmed the conviction but interfered with the sentencing by commuting death sentence to life imprisonment. Underlining the significance of DNA in criminal investigations Supreme Court held that, trial court was not justified in rejecting the report, as nothing adverse could be pointed out against the two experts who had submitted it. When there is a contradiction between medical and DNA report, the later will prevail over medical report³⁹⁶.”

If the DNA fingerprint of a person matches with that of a sample, it means that the sample has come from that person only”. In *Sushil Sharma v. State of N.C.T.Delhi*³⁹⁷ (known as Naina Sahni murder case), the accused Sushil murdered his wife suspecting that she had love affair with her class mate and he took her body to a restaurant and he along with his worker attempted to burn the body in a tandoor. Police recovered blood stained clothes and revolver from the spot and sent to forensic science laboratory. Police also took samples from parents of deceased. The blood stains and blood samples preserved while doing postmortem and recovered from the skull and neck of the body were of the same group and confirmed that the same was of his wife

³⁹⁵. Santhosh Kumar Singh v. State Through CBI, (2010) 9 SCC 747 at para 65.

³⁹⁶. Santhosh Kumar Singh v. State Through CBI, (2010) 9 SCC 747 at para 71.

³⁹⁷. Sushil Sharma v. State of N.C.T.Delhi, (2014) 4 SCC 317.

Naina Sahani. The trial court convicted Sushil Kumar under section 302 of IPC and the High court also confirmed death sentence. Against this, an appeal was filed by Sushil Sharma and the Supreme Court confirmed the conviction but commuted death sentence into life imprisonment. Considering the special circumstances in this case, the prosecution had to heavily depend on the DNA profile which was compared to those of her parents and identity was established³⁹⁸. This was because, though in the ordinary situation, the identification was possible from a variety of clues, like blood, semen, hair roots, body tissues, bone marrow etc. as the body after the murder was being burnt in an oven Tandoor, the body material was too much charred and hence the bone marrow was used to identify the victim. This case testifies that DNA evidence plays an important role in identifying person even from charred body that is beyond the stage of recognition and hence DNA evidence becomes crucial in deciding the guilt of the accused.

Hon'ble Supreme Court in *Sandeep v. State of U P*³⁹⁹ held that when there is delay in collection of sample burden was on the accused to prove that prosecution case was vitiated because of delay in conducting test on the sample taken from the foetus and that the sample was improperly preserved. In the absence of the said burden being discharged by the accused, his conviction for the offences u/s 302/34 and 316/34 of the IPC was held proper. Hence delay does not vitiate the findings.

³⁹⁸. Sushil Sharma v. State of N.C.T.Delhi, (2014) 4 SCC 317 at para18.

³⁹⁹. Sandeep v. State of U P, (2012) 6 SCC 107.

In *Dharam Deo Yadav v. State of U P*⁴⁰⁰, the case was related to rape and murder of 23 year old Dayana a foreign woman. The accused tourist guide Dhramdeo confessed that he had committed the crime along with 3 other accused. There was no eyewitness to the crime the case was fully based on circumstantial evidence. The trial court awarded death sentence to Dharam deo and the High Court also confirmed his death sentence. In appeal, the Supreme Court confirmed the conviction but commuted the death sentence due the absence of scientific evidences and highlighted the need for application of forensic science in criminal investigation. The court observed the need to identify more cross cutting areas of law and science opined thus,

“In this age of science, we have to build legal foundations that are sound in science as well as in law. Practices and principles that served in the past, now people think, must give way to innovative and creative methods, if we want to save our criminal justice system. Emerging new types of crimes and their level of sophistication, the traditional methods and tools have become out-dated, hence the necessity to strengthen the forensic science for crime detection⁴⁰¹”

The foregoing analysis evinces that in Indian situations, it has come to stay that in ensuring effective criminal investigations could DNA plays a vital role in instances which calls for the applications of it.

⁴⁰⁰ Dharamdeo yadav v. State of U P, (2014) 5 SCC 309 at para 33.

⁴⁰¹ Dharamdeo yadav v. State of U P, (2014) 5 SCC 309 at para 30.

Even though DNA technology has a significant role in crime scene investigation, but for acquiring a successful result investigative and laboratory personnel should work together to determine the probative piece of evidence. Every officer should be aware of identification, collection and transportation and storage of DNA evidence. If not properly recognized, documented, collected and preserved it has no value in criminal investigation.

5.6. APPLICABILITY OF DNA EVIDENCE IN INDIA

The laws relating to application of DNA technology in India in investigation and prosecution of crimes can be mainly found in The Constitution of India 1950, The Code of Criminal Procedure, 1973⁴⁰², and The Indian Evidence Act, 1872⁴⁰³. Invariably these provisions enable the state to make the investigation more effective and scientific and there by protect the rights of victim as well as the accused

5.6.1. THE CONSTITUTION OF INDIA, 1950

The Constitution of India casts a duty on every citizen of India to develop the scientific temper, humanism and the spirit of inquiry and reform and to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavor and achievements.⁴⁰⁴ Parliament is competent to undertake legislations which

⁴⁰² The Code of Criminal Procedure, 1973, Sections 53, 54, 53A, 164A, 173(8), 293(2) & (4), Acts of Parliament, 1973 (India)

⁴⁰³ The Indian Evidence Act, 1872, Sections 45 and 112, Acts of Parliament, 1973 (India)
Acts of Parliament, 1872 (India)

⁴⁰⁴ INDIA CONST. art. 51A(j).

encourage various technological and scientific methods to detect crimes speed up investigation⁴⁰⁵ and determine standards in institutions for higher education and development in technical institutions (Entry 65 & 66 of the Union List)⁴⁰⁶. It shows that besides the rights guaranteed to citizen, the Constitutional provisions take care of the scientific developments and put it to use for the benefit of the people. This provision provides that scientific and technological methods can be adopted for detection of criminal investigation.

The introduction of the DNA technology has posed serious challenges to some legal⁴⁰⁷ and fundamental rights of an individual such as “Right to privacy,”⁴⁰⁸ “Right against Self-incrimination”⁴⁰⁹. And this is the most important reason why courts sometimes are reluctant to accept the evidence based on DNA technology

5.6.1.1. RIGHT TO PRIVACY

Man thinks that the right to privacy is a special feature of human beings, and the desire for privacy is a human function for unique ethical, intellectual and artistic needs. But the social scientists engaged in animal studies have refuted this typical human thinking. Accordingly, Prof. Alan F. Westin writes in his book that, "Studies of animal behaviour and social organization suggest

⁴⁰⁵ See Entry 65 of Constitution of India :Union agencies and institutions for -
 (a) professional, vocational or technical training, including the training of police officers; or
 (b) the promotion of special studies or research; or
 (c) Scientific or technical assistance in the investigation or detection of crime.

³¹ See Entry 66 of Constitution of India: Co-ordination and determination of standards in institutions for higher education or research and scientific and technical institutions.

⁴⁰⁷ The Code of Criminal Procedure, 1973, Sections 53, Acts of Parliament, 1973 (India).

⁴⁰⁸ INDIA CONST. art. 21.

⁴⁰⁹ INDIA CONST. art. 20(3).

that man's need for privacy may well be rooted in his animal origins, and that man and animal share a number of basic privacy mechanisms among their own followers⁴¹⁰. The origin of the human right to privacy lies in the origin of man, i.e. in the world of animals. Therefore, the discussion of man's patterns of privacy should start chronologically from man's evolutionary heritage.

The term "Privacy" has been described as "the rightful claim of the individual to determine the extent to which the individual wishes to share with others and to exercise control over the time, place and circumstances to communicate with others. It means his right to withdraw or participate as he sees fit. It also means the right of the individual to control the dissemination of information about him; it is his own personal possession⁴¹¹."

Privacy, in its broad sense, covers a number of aspects, such as non-disclosure of information about oneself, sexual affairs, privacy of business secrets and non-compliance by others, etc⁴¹². The foundation of the concept of the right to privacy was established by Justice Cooley in 1888, using the words "the right to be let alone"⁴¹³

The Constitution does not expressly guarantee right to privacy as a fundamental right. In our country the sole credit goes to judiciary for recognizing the concept of privacy. The Constitution of India guarantees "No

⁴¹⁰. Charles Fried, *Privacy*, LXXVII YLJ 8 (1968).

⁴¹¹. Dr. Sanjib Kumar Tiwari, *Right to Privacy: The Role of Indian Judiciary*, III(1) JCCLR, 10 (2012).

⁴¹². KIRAN DESHTA, *RIGHT TO PRIVACY UNDER INDIAN LAW* 16 (Deep and Deep Publication 2011).

⁴¹³. Shrnivas Gupta & Dr. Preeti Misra, *Right to Privacy – An analysis of Developmental Process in India, America and Europe* XVIII CILQ 254 (2005).

person shall be deprived of his right to life and personal liberty except according to the procedure established by law”⁴¹⁴ .

This means that in order to secure liberty of a person there shall be a law and that law must be a valid one. In the absence of an express guarantee of right to privacy, an understanding on the scope of this right can only have from the decisions of the apex court.

The issue of privacy was decided for the first time by the Supreme Court in *Kharak Singh v State of U P*⁴¹⁵. The main question in that case was whether the surveillance under the Uttar Pradesh Police Regulations constituted an infringement of the citizen’s fundamental rights as guaranteed by the Constitution. The court held that the right of privacy is not a guaranteed fundamental right under our Constitution and therefore the attempt to ascertain the movements of an individual which is merely a manner in which privacy is invaded is not an infringement of fundamental right guaranteed under Part III⁴¹⁶.

In *Govind v. State of Madhya Pradesh*⁴¹⁷, it was held that

“Assuming that the fundamental rights explicitly guaranteed to a citizen have a penumbral zones and that **right to privacy is itself a fundamental right** that fundamental right must be subject to restriction on the basis of compelling public interest”.

⁴¹⁴ INDIA CONST. art. 21

⁴¹⁵ *Kharak Singh v State of U P*, AIR 1963 SC1295.

⁴¹⁶ Justice Subba Rao was a dissenting voice who, however, said that even though the right to privacy was not recognized as a fundamental right, it was essential to personal liberty under Article 21.

⁴¹⁷ *Govind v. State of Madhya Pradesh*, AIR 1975 SC 1378.

The question whether taking blood or bodily sample for DNA analysis was violative of Right to privacy under Article 21 of the Constitution of India was discussed in *Sharda v Dharmpal*⁴¹⁸. In this case the respondent opposed an order for DNA test on the ground that compelling a person to medical examination by an order of the court would be violative of their right to personal liberty guaranteed under Art 21 of the Constitution of India. Court held that Article 21 cannot be treated as absolute right. What is emphasized is that some limitations on this right have to be imposed and particularly where two competing interest clash. Court has to reconcile these competing interests by balancing it in the interest of justice. In this case court evaluated the development and right to privacy in Indian jurisprudence and found that right was not absolute one and some limitations could be imposed if two competing interest clash. Hence passing an order compelling a person to undergo medical examination would not be violative of right to personal liberty under Article 21. The court concluded by stating that:

- i. A matrimonial court has power to order a person to undergo medical test
- ii. Passing of such an order does not violate the right of personal liberty under Art 21 of the constitution of India.
- iii. If the applicant has a strong prima facie case and there is sufficient material before the court, it should exercise such a power. Despite the order of the court, if the respondent refuses to

⁴¹⁸ *Sharda v. Dharmapal*, 2003 (2) KLT 243 (SC).

submit himself to medical examination, the court will be entitled to draw adverse inference against him.

Again in *Thogorani alias K. Damayanti v. State of Orissa*,⁴¹⁹ it was held that only restriction for issuing a direction to collect blood sample of the accused for conducting DNA test would be that before passing such a direction, the courts should balance public interest and the right guaranteed under Article 21 and Article 20(3) of the Constitution. But if the deprivation is in accordance with procedure established by law it will not violate Article 21 of the Constitution⁴²⁰

A discussion of the compelling interest as a justification for collection of samples will be appreciated. In *Ramakrishnan v. Mrinalini*⁴²¹ when there is an apparent conflict between the right to privacy of a person not to submit himself forcibly to medical examination and duty of the court to reach the truth, the court must exercise its discretion only after balancing the interests of the parties and on due consideration whether for a just decision in the matter, DNA test is eminently needed. DNA test in a matter relating to paternity of a child should not be directed by the court as a matter of course or in a routine manner, whenever such a request is made. The court has to consider diverse aspects including presumption under S.112 of the Evidence Act; pros and cons of such order and the test of “eminent need” whether it is not possible for the court to reach the truth without use of such test.

⁴¹⁹. *Thogorani alias K. Damayanti v. State of Orissa*, 2004 CriLJ 4003.

⁴²⁰. *Thogorani alias K. Damayanti v. State of Orissa*, 2004 CriLJ 4003 at para 22.

⁴²¹. *Ramakrishnan v. Mrinalini* 2018 (3) KLT 5.

Supreme Court in *K.S. Puttaswami v. Union of India*⁴²² overruled its earlier judgement in *M.P.Saharma v. Sathish Chandra*⁴²³ and *Karaksingh v. State of Uttar Pradesh*⁴²⁴ which observed that there was no fundamental right to privacy enshrined in the Constitution of India. However Court observed that privacy is not a guaranteed fundamental right. Though dissenting judgment Justice Subba Rao opined that even though right to privacy was not expressly recognized as a fundamental right it was an essential ingredient of personal liberty.

Following the approach of Justice Subba Rao, the nine-judge bench of the Supreme Court in *K.S. Putta Swamy and another v. Union of India*⁴²⁵ recognized the right to privacy as an intrinsic part of the fundamental right to life and personal liberty under Article 21 of the Constitution of India in particular, and in all fundamental rights in Part III which protect freedoms in general, and overruled the aforementioned judgments to this extent. Notably, it was held that the Constitution of India must evolve with the circumstances of time to meet the challenges thrown up in a democratic order governed by the rule of law and that the meaning of the Constitution of India cannot be frozen on the perspectives present when it was adopted.

Right to privacy though not guaranteed by the constitution, Supreme Court recognized the right and read it in the ambit of Art 21 of the constitution. Though it is a guaranteed right under Article 21 of the Constitution it can be

⁴²² K.S. Puttaswami v. Union of India, (2017) 10 SCC 1.

⁴²³ M P Sharma v. Satish Chandra, AIR 1954 SC 300.

⁴²⁴ Karakh Singh v. State of U P, AIR 1963 SC 1295.

⁴²⁵ K.S. Puttaswami v. Union of India (2017) 10 SCC 1.

infringed in compelling public interest or if there is any procedure established by law. The above cases show how far the right to privacy could be extended against ordering of forensic examination.

5.6.1.2. RIGHT AGAINST SELF INCRIMINATION

The relevance to understand the contours of right against self-incrimination as a constitutional impediment arises in the present context because of the overwhelming chances wherein an investigation agency may forcefully subject the accused to undergo the collection of samples for scientific evidences like DNA evidence. The Constitution of India provides that “No person accused of an offence shall be compelled to be a witness against himself”⁴²⁶. This fundamental right works as a protection to an accused person charged with a criminal case against compulsion to give evidence against himself / herself.⁴²⁷ The idea behind the protection against self-incrimination is to encourage a free atmosphere in which the accused can be persuaded to come forward to furnish evidence in courts and be of substantial help in elucidating the truth in a case, with reference to material within their knowledge and in their possession. The inter relationship between right against self-incrimination and right to fair trial has been recognized in international instruments also⁴²⁸. The extent and scope of the ban imposed by Article 20 on self- incrimination

⁴²⁶. INDIA CONST. art. 20(3).

⁴²⁷. The Code of Criminal Procedure, 1973 also provides this protection to accused. Section 161(2) of the Code says thus, “Such person shall be bound to answer truly all questions relating to such case put to him by such officer, other than questions the answers to which would have a tendency to expose him to a criminal charge or to a penalty or forfeiture”.

⁴²⁸. See Article 14(3) (g) of the International Covenant on Civil And Political Rights, 1966 enumerates minimum guarantee that is to be accorded during a trial and states that everyone has a right not to be compelled to testify against himself/herself or to confess guilt.

was considered by the in *M.P. Sharma v. Satish Chandra*⁴²⁹. The question that arose before the Supreme Court was whether the search and seizure of documents from a person against whom a First Information Report has been lodged with the police, amounted to compelling him to be witness against himself within the meaning of Art 20(3) of the Constitution of India. The court also observed that the word ‘witness’ in its natural sense is to be understood to mean a person who furnished evidence and when there was forcing testimony so as to incriminate himself to crime then only Article 20(3) would be attracted.

In India the expression Right against Self Incrimination had been a subject of great controversy till it was ultimately settled by the Supreme Court in *State of Bombay v Kathi Kalu Oghad*⁴³⁰. The main question before the Supreme Court was “whether taking of fingerprint was violative of Right against self incrimination. In this case after an elaborate discussion the Supreme Court reached the following conclusion, “The use of material samples such as finger print for the purpose of comparison and identification does not amount to testimonial act and Article 20(3) Prohibit forcing testimony and by incriminate him to crime”. The Court also clarified that “mere questioning of a person in police custody and he is giving a voluntary statement which might ultimately turn to be incriminatory not a compulsion. Accordingly giving thumb, finger, or foot impression , or exhibiting any parts of body by way of identification are not included in the expression to be a witness .On the other

⁴²⁹ *M.P. Sharma v. Satish Chandra*, AIR 1954 SC 300.

⁴³⁰ *State of Bombay v. Kathikalu oghad*, 1961 KLT 74 (SC).

hand 'being a witness' has been interpreted to mean imparting some sort of knowledge in testimony".⁴³¹

In *Swathi Lodha v. State of Rajasthan*⁴³², it was held that if a party refuses comply the blood test; the court may at its discretion infer corroborative evidence against him. The constitutionality and evidentiary value of scientific evidences had been a serious issue in India till the decision of *Selvi v. State of Karnataka*⁴³³. The main issue involved was whether narco analysis, brain mapping, and polygraph could be used as constitutionally valid methods for gathering evidences. As the Supreme Court held that no individual should be forcibly subjected to any of these techniques in question, whether in the context of investigation in a criminal cases, or otherwise. If these techniques are used forcefully would amount to unwarranted intrusion into the person's liberty. The court besides holding that the compulsory administration of the impugned techniques would violate the right against self-incrimination, it also held that DNA and such other tests used in the section 53 Cr P C are confined to include only those tests which involved examination of physical evidence.

In *Bhavna ben Vajubhai Odedara v. State of Gujarat*⁴³⁴, the question whether DNA profile was different from DNA sample was decided in this case. The DNA profiling has been expressly included among the various forms of the medical examination in the amended explanation to sections 53, 53-A and 54 of the Cr P C. The DNA profile is different from a DNA sample which can be

⁴³¹ State of Bombay v. Kathikalu oghad, 1961 KLT 74 (SC).

⁴³² Swathi Lodha v. State of Rajasthan, 1991 CriLJ 931.

⁴³³ Selvi v. State of Karnataka, (2010) 7 SCC 263.

⁴³⁴ Bhavna ben Vajubhai Odedara v. State of Gujarat 2018 (2) KLT OnLine 2104 (Guj.)

obtained from the bodily substances. The DNA profiling is a record created on the basis of the DNA samples made available by the forensic experts. The matching of DNA samples is emerging as a vital tool for linking suspect's specific criminal acts. Therefore, the taking of the DNA samples which are in the nature of physical evidence does not violate Article 20(3) of the Constitution. The foregoing analysis of the above cases it shows that taking of blood samples for the purpose of investigation will not amount to self-incrimination, as they are physical evidences which are used for the purpose of comparison.

5.6.2. THE CODE OF CRIMINAL PROCEDURE, 1973

For effective investigation, provisions have been incorporated under Code of Criminal Procedure, 1973⁴³⁵. As per section 53 of the Code if there are reasonable grounds for believing that the examination of body of arrested person will give evidence as to the commission of crime, then medical examination can be conducted by a registered medical practitioner at the request of police officer. It also permits the use of reasonable force necessary for the purpose of medical examination. The validity of Sec.53 Cr P C which enables the police or Court to take the blood sample for the purpose of investigation was challenged in *Anil Anantrao Lokhande v. The State Of Maharashtra*⁴³⁶.

⁴³⁵. The Code of Criminal Procedure, 1973, S. 53 & 54, Acts of Parliament, 1973 (India).

⁴³⁶. *Anil Anantrao Lokhande v. The State Of Maharashtra* 1981 CriLJ 125.

The main question raised in this case was whether section 53 Cr P C was violative of fundamental right guaranteed under Article 20(3) of the Constitution of India⁴³⁷. The contention of the petitioner was that there were no provisions in Cr P C which enable the police to take sample of blood of accused for determining his blood group. He had also argued that by this process he is forced to tender evidence against himself or being compelled to be a witness against himself. The court relied on its earlier decision in *State of Bombay v. Kathi Kalu Oghad*⁴³⁸ in which it was held that giving thumb or finger impression or exhibiting parts of the body by way of identification are not included in the expression “to be witness”. Hence it was held that there should not be any constitutional impediment in asking a person to give sample of his blood for DNA analysis.⁴³⁹ In the instant case, Court also pointed out that sections 53 and 54 of Cr P C are incorporated in the Code of Criminal Procedure, 1973 to remove the lacunae which was there in the old Code⁴⁴⁰ i.e., old code required consent for medical examination. It also pointed out that the blood test becomes routine for effective investigation and that there is nothing brutal as offensive or shocking in taking blood sample under the protective eye of law by registered medical practitioner⁴⁴¹.

⁴³⁷. Article 20(3) of the Constitution of India declares that no person accused of an offence shall be compelled to be a witness against himself.

⁴³⁸. *State of Bombay v. Kathi Kalu Oghad* AIR 1961 SC1808.

⁴³⁹. *Amit anantrao v. state of MH* 1981 CrLJ 125 at para 14. The court also observed that makers of the constitution could not have intended to put obstacles in the way of effective and efficient investigation of crime.

⁴⁴⁰. *Amit anantrao v. state of MH* 1981 CrLJ 125 at para 27.

⁴⁴¹. *Amit anantrao v. state of MH*, 1981 CriLJ 125 para 31.

In *Swathi Lodha v. State of Rajasthan*⁴⁴² the Apex Court held that if the Court directed for blood-test, and the accused failed to comply with the blood-test direction, then it can be used as corroborative evidence against him. The Court also held that the refusal or failure to submit blood test may infer that some impediments existed which pointed out towards the implication of the accused.

Even though section 53 Cr P C refers to medical examination by medical practitioner at the request of investigating officer, the Court have wider powers to direct the police officers to collect blood samples from the accused. Even after completion of investigation and submission of charge sheet, the police can make application for further investigation.

The question whether the Court have a wider power to direct the police officer to collect blood sample from the accused and conduct DNA test for the purpose of further investigation under S.173(8)⁴⁴³ of the Code was decided in *Thogorani alias K. Damayanti v. State of Orissa*.⁴⁴⁴ In this case, the court held that section 53 Cr P C refers only to examination of the accused by medical practitioner at the request of the police officer, and there is no reason why the court should not have a wider power for the purpose of doing justice in

⁴⁴² *Swathi Lodha v. State of Rajasthan*, 1991 CriLJ 939.

⁴⁴³ Section 173(8) of the Code Criminal Procedure, 1973 says thus, "(8) Nothing in this section shall be deemed to preclude further investigation in respect of an offence after a report under sub-section (2) has been forwarded to the Magistrate and, where upon such investigation, the officer in charge of the police station obtains further evidence, oral or documentary, he shall forward to the Magistrate a further report or reports regarding such evidence in the form prescribed; and the provisions of sub-sections (2) to (6) shall, as far as may be, apply in relation to such report or reports as they apply in relation to a report forwarded under sub-section (2).

⁴⁴⁴ *Thogorani alias K. Damayanti v. State of Orissa*, 2004 Cri.L.J. 4003.

criminal case by issuing a direction to the police officer to collect blood sample from the accused and conduct DNA test for the purpose of further investigation under S.173 (8) of the Code⁴⁴⁵. The Court also acknowledged that DNA evidence is now a predominant forensic technique for identifying criminals when biological tissues are left at scene of crime. It was further held that DNA testing on samples such as saliva, skin, blood, hair or semen not only helps to convict but also serves to exonerate and that the sophisticated technology makes it possible to obtain conclusive results in case in which the previous testing had been inconclusive. The court also noted that while issuing direction for blood test certain factors like the extent to which accused may have participated in the commission of crime, the gravity of the offence, age, physical and mental health of accused, reason for refusal of consent etc. to be taken into account⁴⁴⁶.

The scope of section 53 Cr P C was expanded in the year 2005 by the Code of Criminal Procedure (Amendment) Act, 2005 so as to include the examination of blood, blood stains, semen, swabs in case of sexual offence, sputum and sweat, hair samples and finger nail clippings, by the use of modern and scientific technique including DNA profiling and such other tests which the registered medical practitioner thinks necessary in a particular case. The same amendment introduced two new sections, viz., sections 53A⁴⁴⁷ and

⁴⁴⁵. Thogorani alias K. Damayantiv. State of Orissa, 2004 CriLJ 4003 at para14.

⁴⁴⁶. Thogorani alias K. Damayantiv. State of Orissa, 2004 CriLJ 4003 at para 23.

⁴⁴⁷. See Section 53A of Code of Criminal Procedure 1973 - Examination of person accused of rape by medical practitioner

1. When a person is arrested on a charge of committing an offence of rape or an attempt to commit rape and there are reasonable grounds for believing that an examination of

164A⁴⁴⁸, which authorized the investigating officer to collect DNA sample from the body of the suspect as well as the victim with the help of a registered

his person will afford evidence as to the commission of such evidence, it shall be lawful for a registered medical practitioner employed in a hospital run by the Government or by a local authority and in the absence of such a practitioner within the radius of sixteen kilometers from the place where the offence has been committed by any other registered medical practitioner, acting at the request of a police officer not below the rank of a sub-inspector, and for any person acting in good faith in his aid and under his direction, to make such an examination of the arrested person and to use such force as is reasonably necessary for that purpose.

2. The registered medical practitioner conducting such examination shall, without delay, examine such person and prepare a report of his examination giving the following particulars, namely :-
 - i. The name and address of the accused and of the person by whom he was brought;
 - ii. The age of the accused;
 - iii. Marks of injury, if any, on the person of the accused;
 - iv. The description of material taken from the person of the accused for DNA profiling; and
 - v. Other material particulars in reasonable detail.
3. The report shall state precisely reasons for each conclusion arrived at.
4. The exact time of commencement and completion of the examination shall also be noted in the report
5. The registered medical practitioner shall, without delay, forward the report of the investigating officer, who shall forward it to the Magistrate referred to in Section 173 as part of the documents referred to in clause (a) of sub-section (5) of that section.

⁴⁴⁸. Section 164A of Code of Criminal Procedure, 1973, which discusses Medical examination of the victim of rape

1. Where, during the stage when an offence of committing rape or attempt to commit rape is under investigation, it is proposed to get the person of the woman with whom rape is alleged or attempted by a medical expert, such examination shall be conducted by a registered practitioner employed in a hospital run by the Government or a local authority and in the absence of such a practitioner, by any other registered medical practitioner, with the consent of such women shall be sent to such registered medical practitioner within twenty four hours from the time of receiving the information relating to the commission of such offence.
2. The registered medical practitioner, to whom such woman is sent, shall, without delay, examine her and prepare a report of his examination giving the following particulars, namely:-
 - i. The name and address of the women and of the person by whom she was brought;
 - ii. The age of the woman;
 - iii. The description of material taken from the person of the woman for DNA profiling;
 - iv. Marks of injury, if any, on the person of the woman;
 - v. General mental condition of the woman; and
 - vi. Other material particulars in reasonable detail.
3. The report shall state precisely the reasons for each conclusion arrived at
4. The report shall specifically record that the consent of the woman or of the person competent to give such consent on her behalf to such examination had been obtained

medical practitioner. After the amendment the term medical examination is extended so as to include DNA test.

In *Selvi v. State of Karnataka*⁴⁴⁹, Supreme Court clarified the term testimonial and physical evidences. Blood, semen, hair etc. were characterized as physical evidences and the statements obtained by narco tests, polygraph and brain mapping are testimonial acts and cannot be characterized as material evidence. The court also clarified that DNA and such other tests used in the section 53, 53A and 54 of the Cr.P.C. are confined to include only those tests which involved examination of physical evidence and hence it do not come within the scope of Article 20(3)⁴⁵⁰. Hence DNA samples can be collected without the consent of accused person as it is physical evidence used for the purpose of comparison.

In *Halappa v. State of Karnataka*⁴⁵¹ the Supreme Court held that Cr. P.C. (Amendment) Act, 2005 was brought to overcome the difficulty of prosecuting agency to detect serious offence like rape. The court also held that drawing of blood sample for detection of offence of rape where the investigating agency had to establish its case beyond reasonable doubt could not be termed as violative of Art 20(3) of the Constitution and hence the section was not ultravires Constitution.

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5. The exact time of commencement and completion of the examination shall also be noted in the report.
 6. The registered medical practitioner shall, without delay, forward the report to the investigation officer who shall forward it to the Magistrate referred to in Sec.173 as part of the documents referred to in clause (a) of sub-section (5) of that section.

⁴⁴⁹. *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

⁴⁵⁰. *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

⁴⁵¹. *Halappa v. State of Karnataka*, 2010 Cri.LJ 4341.

In *Krishna Kumar Malik v. State of Haryana*⁴⁵², the Supreme Court explained that DNA profiling could be permissible under law even in the absence of section 53A CrPC. The Court observed:

Now after the incorporation of section 53A in Criminal Procedure Code with effect from 23.06.2006, it has become necessary for the prosecution to go in for DNA test in such type of cases, facilitating the prosecution to prove its case against the accused. Prior to 2006, the prosecution could have still resorted to this procedure of getting the DNA test even without the aforesaid specific provisions in Cr. P.C to make the case fool proof.

5.6.3. INDIAN EVIDENCE ACT, 1872

Apart from Code of Criminal Procedure, the Indian Evidence Act, 1872 comprehends policies regarding the admissibility of scientific evidences. The duty of judge is to decide the cases as per the evidences put before him by the witnesses. The general rule of evidence is that opinion and belief of third person are irrelevant and inadmissible which means evidence should be based only on facts and not on opinion or inferences. But the judges are not expected to be an expert in all the fields; especially where the subject matters involves technical knowledge. In these circumstances courts need the help of an expert, who is supposed to have superior knowledge or experiences in relation to those subject matters. Thus the Evidence Act, 1872 has a clear perception of appreciation of expert evidence and this goes a long way in the matter of

⁴⁵² *Krishna Kumar Malik v. State of Haryana*, (2011) 7 SCC 130.

appreciating the evidences which springs from scientific and technological advancement.⁴⁵³ The words, science or art includes all subjects on which a course of special study or experience is necessary to the formation of an opinion.⁴⁵⁴ Sec 45 does not expressly say about the opinion of DNA expert as an expert opinion. The pertinent question is whether opinion given by DNA expert can be included under section 45 of Indian Evidence Act or whether the term Science covers DNA test which requires special study or experience necessary to the formation of an opinion.

In *Kunjiraman v. Manoj*⁴⁵⁵ the Kerala High Court reached the conclusion that that as per section 45 of the Indian Evidence Act, evidence given by DNA expert is admissible just like opinion of a chemical analyst or fingerprint expert. It is also relevant under section 51⁴⁵⁶ of Indian Evidence Act as section 51 says, “Whenever the opinion of any living person is relevant, the grounds on which such opinion is based are also relevant.” The illustration reinforces the principle when it states that, “An expert may give an account of experiments performed by him for the purpose of forming his opinion.” In the instant case the Court upheld the view of trial Court judge and opined that DNA testing is a deciding factor for paternity dispute.

⁴⁵³. Section 45 of evidence act makes it clear that expert testimony is admissible, if it is based on the opinion of a person who is skilled in foreign law, science, art, hand writing, and finger impression. Section 46 lays down the principles that when the opinion of experts is relevant, any fact which is otherwise irrelevant will become relevant if it either supports or contradicts the opinion of experts.

⁴⁵⁴. RATANLAL AND DHIRAJLAL , THE LAW OF EVIDENCE 868 (Lexis Nexis, 2015)

⁴⁵⁵. *Kunjiraman v. Manoj*, 1991 (2) KLT 190.

⁴⁵⁶. See Indian Evidence Act, 1872, S. 121, Acts of Parliament, 1872, (India).

In *State of Himachal Pradesh v. Jailal*⁴⁵⁷ the court held that in order to bring the evidence of a witness as that of an expert it has to be shown that he has made a special study of the subject or acquired a special experience there in or in other words that he is skilled and has adequate knowledge of the subject. In *Patangi Balarama Venkata Ganesh v. State of A P*⁴⁵⁸, where the court highlighted that evidence of DNA expert is admissible in evidence as it is a perfect science. The same view was also upheld in *Santhosh Kumar Singh v. State through CBI*⁴⁵⁹ where the Apex Court held that DNA evidence was scientifically accurate and there was no doubt that DNA Fingerprinting is an exact science.

In *Daram deoYadav v. State of U.P.*⁴⁶⁰ the Supreme Court emphasized the need of scientific investigation and pointed out that even the when the reliable witness for prosecution turned hostile due to fear, or some other reasons, the investigating agency had to look for other ways to improve the quality of investigation, that can be done only through scientific evidences.⁴⁶¹ The court also held that DNA profile was consistently held to be valid and reliable, but it depends on quality control and quality assurance procedures in the laboratory.

One cannot afford to overlook the vacuums and silences in the Indian Evidence Act regarding the standards to be adopted for evaluating expert's

⁴⁵⁷ *State of Himachal Pradesh v. Jailal*, AIR 1999 SC 3318.

⁴⁵⁸ *Patangi Balarama Venkata Ganesh v. State of A P*, 2003 CriLJ 4508.

⁴⁵⁹ *Santhosh Kumar Singh v. State through CBI*, (2010) 9 SCC 747.

⁴⁶⁰ *Daram deoYadav v. State of U.P.*, (2014) 5 SCC 509.

⁴⁶¹ *Daram deoYadav v. State of U.P.*, (2014) 5 SCC 509.

evidence, as Section 45 only provides an expert must be a person having special skill on the subject provided. It depends on facts upon which it is based and on the validity of the process by which they reach the conclusion.

Some privileges indeed are given to forensic experts, by the Criminal Procedure Code 1973, in the matter of appearing before the court of law as witnesses.⁴⁶² This provision is intended to ensure that an expert covered by this section is not to be summoned for oral evidence as a matter of routine. The Court has discretion in the matter and may summon the witness only if it is satisfied that it is expedient to do so in the interest of justice. But DNA experts are not specified in section 293(4) Cr P C. and hence they cannot claim the privileges. The Malimath Committee constituted under the Chairmanship of Dr. Justice V.S. Malimath on reforms in criminal justice in its report in 2003, has strongly suggested comprehensive use of forensic science from inception, besides suggesting the inclusion of DNA experts in section 293 (4) Cr P C.⁴⁶³

⁴⁶². See Section 293 of Code of Criminal Procedure, 1973, which says that the reports of certain Government Scientific experts can be used as evidence in any enquiry, trial or other proceedings under Cr P C. and that they need not be examined as witnesses. (4) This Section applies to the following government scientific experts, (a) Any chemical Examiner or Assistant Chemical Examiner to Government; (b) The Chief Inspector of Explosives; (c) The Director of the Finger Print Bureau; (d) The Director, Haffkeine Institute, Bombay; (e) The Director Deputy Director or Assistant Director of a Central Forensic Science Laboratory or a State Forensic Science Laboratory; (f) The serologist to the Government; (g) any other Government Scientific expert specified by the notification, by the Central Government for this purpose.)

⁴⁶³. Dr. Justice V S Malimath, *Committee on Reforms of Criminal justice system*, Government Of India, Ministry of Home Affairs, 2003 p.284 at Para 7.1.

In *Anand Pasi v. State of U.P and Another*⁴⁶⁴ it was held that a report of scientific expert duly submitted by him for examination or analysis can be used as evidence without examine the expert.

From the above decisions it is clear that even though DNA evidence is not considered strictly as an expert evidence under Indian Evidence Act, it is left to the discretion of judges to decide whether DNA test to be accepted or, not. Though there were conflicting decisions it is remarkable to note that judges do not deny the attribute of scientific accuracy and conclusiveness of DNA testing. Moreover the Draft National Policy on Criminal Justice had recommended that the Evidence Act need to be amended to make scientific evidence admissible⁴⁶⁵.

5.6.4. DNA EVIDENCE OF PARENTAGE IDENTIFICATION

The role of DNA test in parentage identifications is very important. Identification of parentage is necessary to prove the legitimacy of the child. Body sample collected from the child is compared with that of the parent through DNA technology. Paternity testing extensively uses DNA profiling because of its capacity to determine to a high degree of certainty. In *Kunji Raman v. Manoj*⁴⁶⁶ which was the first paternity dispute case related to DNA⁴⁶⁷ analysis, the petitioner alleged that her son was born to her on account

⁴⁶⁴. *Anand Pasi v. State of U.P and Another*, 2014 CriLJ 1992.

⁴⁶⁵. Prof. (Dr) N R Madhava Menon, Report on Draft National Policy on Criminal Justice System, Government of India, Ministry of Home Affairs, 2007, at p.17.

⁴⁶⁶. *Kunjiraman v. Manoj*, 1991 (2) KLT 190.

⁴⁶⁷. DR. LILY SRIVASTHAVA, LAW RELATING TO SCIENCE AND TECHNOLOGY 155 (Thomson Reuters south asia private limited 2016)

of her illicit relationship with the respondent Kunjiraman. But the respondent denied the paternity of the child and the petitioner filed a maintenance case under section 125 Cr P C. before the CJM Court of Thalassery. As there was no legal marriage between the parties court found that it is difficult to apply section 112 of Indian Evidence Act, 1872⁴⁶⁸ and ordered for DNA test between the parties. Though the report confirmed that the parties to the proceeding were the biological parents of child, the petitioner questioned the reliability of DNA test and for that the court examined senior scientist of the Centre for Cellular and Molecular Biology wherein the test was held. CJM court of Thalassery held that the evidence of the expert is admissible under section 45 of Indian Evidence Act. The trial court judgment was challenged before the Kerala High Court and it also upheld that DNA testing is a deciding factor for paternity dispute⁴⁶⁹. Kerala High Court also pointed out that law allows an illegitimate son also to be maintained by the affluent putative father though the mother who cannot claim to be the wife is not entitled to maintenance. Only the goodwill of Kunjiraman is required to legitimize both of them⁴⁷⁰.

The legislature had not kept in mind the scientific and technological advancement that would be made in future at the time of enactment.

⁴⁶⁸ See, Section 112 of Indian Evidence Act, 1872; Birth during marriage, conclusive proof of legitimacy.—The fact that any person was born during the continuance of a valid marriage between his mother and any man, or within two hundred and eighty days after its dissolution, the mother remaining unmarried, shall be conclusive proof that he is the legitimate son of that man, unless it can be shown that the parties to the marriage had no access to each other at any time when he could have been begotten.

⁴⁶⁹ Kunjiraman v. Manoj, 1991 (2) KLT 190 at para 20.

⁴⁷⁰ Kunjiraman v. Manoj, 1991 (2) KLT 190 at para 21.

The apex court seem to have a different stance when it comes to the evidentiary value of scientific evidence in the shape of DNA when pitted against the probative requirements fixed by the Indian Evidence Act in section 112 in the matter of proving paternity disputes.

The reluctant stand against scientific evidence in deciding on the validity of DNA can be found in *Gautham kundu v. State of West Bengal*⁴⁷¹. The main issue in this case was whether the matrimonial court could order blood test as a matter of course and took the view that courts in India could not order blood test as a matter of course. The decision was premised on the notion that no one could be compelled to give blood sample for analysis. The court also held that here must be a strong prima facie case is that the husband must establish non-access in order to dispel the presumption arising under section 112 of Evidence Act, which says birth during marriage is a conclusive proof of legitimacy. The concern bordering on social policy was also brought out in the shape of a caution that the courts must carefully examine as to the consequence of ordering the blood test which could have the effect of branding a child as a bastard and the mother as an unchaste woman.

Again in *Kamti Devi v. Poshi Ram*,⁴⁷² the apex court observed that even though the result of a genuine DNA test was said to be scientifically accurate, it was not enough to escape from the conclusiveness of Section 112 of the Indian Evidence Act, 1872.

⁴⁷¹. *Gautham kundu v. State of West Bengal*, AIR 1993 SC 2295.

⁴⁷². *Kamti Devi v. Poshi Ram*, (2001) 5 SCC 311.

If a husband and wife were living together during the time of conception but the DNA test revealed that the child was not born to the husband, the conclusiveness in law would remain irrebuttable.

A same view was also upheld in *Amarjit Kaur v. Har Bhajan Singh*⁴⁷³, the court observed that, section 112 of the Evidence Act was enacted at a time when the modern scientific advancements with deoxyribonucleic acid (DNA) as well and ribonucleic acid (RNA) tests were not performed. It was held that though a genuine DNA test was said to be scientifically accurate, the same do not suffice to escape from the conclusiveness of presumption of law about the legitimacy of the child.

Subsequently a full bench of the Supreme Court in *Sharda v. Dharmpal*⁴⁷⁴ considered the question of law as to whether the matrimonial court has power to order blood test and clarified that the decision in *Goutam Kundu*⁴⁷⁵ is not an authority. The main question considered was that whether a party to a divorce proceeding could be compelled for a medical examination. The appellant contended that compelling a person to medical examination by an order of the court would be violative of right to personal liberty guaranteed under Art 21 of the Constitution of India. The Court observed that in all matrimonial cases where divorce is sought on ground of impotency, schizophrenia etc., normally without a medical examination, it would be difficult to arrive at a conclusion as to allegation made against the spouse

⁴⁷³. *Amarjit Kaur v. Har Bhajan Singh*, (2003) 10 SCC 228.

⁴⁷⁴. *Sharda v. Dharmpal*, (2003) 4 SCC 493.

⁴⁷⁵. *Gautham Kundu v. State of West Bengal*, AIR 1993 SC 2295.

seeking divorce on such ground is correct or not. The court held that a matrimonial court has the power to order a person to undergo medical test and passing of such an order is not in violation of the right to personal liberty under Art 21 of the constitution of India. The court also held that if despite an order of the court, the respondent refuses to submit himself to medical examination; the court would be entitled to draw adverse inference against him⁴⁷⁶.

The question whether a person can be physically compelled to give blood sample in compliance with order of a civil court in a paternity case was decided in *Narayan Dutt Tiwari v. Rohit Shekar*,⁴⁷⁷ A suit was filed by the respondent for declaration that he is the natural born son of the appellant N.D.Tiwari and that he is the father of the respondent and for perpetual injunction restraining the N.D.Tiwari from denying in public the fact that he is the father of the respondent. While the suit was pending the respondent filed a petition for direction to N.D.Tiwari to submit himself for a DNA test or other test required to determine the parentage of the respondent.

The trial court allowed the petition, against which N.D.Tiwari preferred an appeal which was dismissed by the High Court and an SLP was preferred in Supreme Court. N.D.Tiwari in the said application sought a direction that he should not be pressurized, compelled or forced in any manner to involuntarily provide blood and/or other tissue sample for DNA testing. Single Judge

⁴⁷⁶. Indian Evidence Act, 1872, S. 114, Acts of Parliament, 1872, (India). This provision enables a Court to draw an adverse inference if the party does not produce relevant evidence in his power and possession.

⁴⁷⁷. *Narayan Dutt Tiwari v. Rohit Shekar*, (2012) 12 SCC 554.

observed that the refusal of N.D.Tiwari to submit sample is willful, malafide, unreasonable and unjustified⁴⁷⁸. Supreme Court opined,

“Justice is best served by truth. Justice is not served by impeding the establishment of truth. No injustice is done to him by conclusively establishing paternity. If he is the father, his position is put beyond doubt by the testing, and the justice of his position is entrenched by the destruction of the mother's doubts and aspersions. If he is not the father, no injustice is done by acknowledging him to be a devoted stepfather to a child of the family. Justice to the child, a factor not to be ignored, demands that the truth be known when truth can be established, as it undoubtedly can”.⁴⁷⁹

Even the Constitution of India, while laying down the fundamental duties by Article 51-A (h) and (i) declares it to be the duty of every citizen of India to develop a scientific temper and the spirit of inquiry and reform and to strive towards excellence, to reach higher levels of achievement. What we wonder is that when modern tools of adjudication are at hand, must the courts refuse to step out their dogmas and insist upon the long route to be followed at the cost of misery to the litigants. The answer obviously has to be no. The courts are for doing justice, by adjudicating rival claims and unearthing the

⁴⁷⁸ Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 12.

⁴⁷⁹ Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 39.

*truth and not for following age old practices and procedures, when new better methods are available*⁴⁸⁰.

The court concluded that the valuable right of the appellant under the said direction, to prove his paternity through such DNA testing cannot be taken away by asking the appellant to be satisfied with the comparatively weak adverse inference⁴⁸¹. The presumption cannot displace adequate evidence.

The Court held that direction of court for DNA testing could be executed like decree of a civil court and referred the decision in *Deep Chand v. Mohan Lal*⁴⁸², where it was held that the purpose of execution proceeding is to enable the decree - holder to obtain the fruits of his decree and even if there is any ambiguity, interpretation which assists the decree-holder should be accepted; the execution of decree should not be made futile on mere technicalities. It was further observed that keeping in view the prolonged factum of litigation resulting in the passing of a decree in favour of a litigant, a rational approach is necessitated and the policy of law is to give a fair and liberal, and not a technical construction, enabling the decree-holder to reap the fruits of his decree⁴⁸³. The court further observed that it is the rule of law in evidence that the best available evidence should be brought before the court to prove a fact or issue and the court should take an active role in the proceedings

⁴⁸⁰. Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 38.

⁴⁸¹. Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 56.

⁴⁸². Deep Chand v. Mohan Lal 2000(6) SCC 259.

⁴⁸³. Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 25.

in finding the truth and administering justice. The court also directed the single judge to seek police assistance and use reasonable force for compliance⁴⁸⁴

In *Nandlal Wasudeo Badwaik v. Lata Nandlal Wasudeo Badwaik*,⁴⁸⁵ the wife filed petition for maintenance to herself and her daughter, but husband denied the paternity of the child stating that, there were no physical relationship between them for about five years. The lower court accepted the plea of wife and awarded maintenance to herself and her daughter. The court did rejected the application of husband for DNA test and held that only section 112 of Indian Evidence Act,1872 would be made applicable in this case. The High court also confirmed the order of the lower Court. In the special leave petition filed by the husband before the Supreme Court, the court ordered for DNA test, the result of which was in favour of husband which was again repeated on the request of the wife. Both these tests proved that the husband was not the biological father of girl child. The court relieved the husband from giving maintenance to girl child and observed thus:

We must understand the distinction between a legal fiction and the resumption of a fact. Legal fiction assumes existence of a fact which may not really exist. However presumption of a fact depends on satisfaction of certain circumstances. Those circumstances logically would lead to the facts sought to

⁴⁸⁴ Narayan Dutt Tiwari v. Rohit Shekar, (2012) 12 SCC 554 at para 59.

⁴⁸⁵ Nandlal Wasudeo Badwaik v. Lata Nandlal Wasudeo Badwaik, (2014) 2 SCC 576.

be presumed. Section 112 of the Evidence Act does not create a legal fiction but provides for presumption⁴⁸⁶.

The husband's plea that he had no access to the wife when the child was begotten stands proved by the DNA test report and in the face of it; we cannot compel the appellant to bear the fatherhood of a child, when the scientific reports prove to the contrary. When there is a conflict between a conclusive proof envisaged under law and a proof based on scientific advancement accepted by the world community to be correct, the latter must prevail over the former. Court taken the view that that an innocent child might not be bastardized as the marriage between her mother and father was subsisting at the time of her birth, but in view of the DNA test report, the Court cannot forestall the consequence. It is denying the truth. "Truth must triumph" is the hallmark of justice⁴⁸⁷.

From the analysis of the above cases, it can be seen that, the apex court have gradually taken a positive view regarding the importance of as well as applicability of DNA evidence in deciding disputed paternity issues. All the same it is to be noted that the employing and adducing of DNA evidence is not backed by any specific legal provisions in Indian Evidence Act to cover modern scientific techniques, but through sheer interpretations. The Law commission of India has already recommended the inclusion of DNA

⁴⁸⁶. Nandlal Wasudeo Badwaik v. Lata Nandlal Wasudeo Badwaik, (2014) 2 SCC 576 at para18

⁴⁸⁷. Nandlal Wasudeo Badwaik v. Lata Nandlal Wasudeo Badwaik, (2014) 2 SCC 576 at para19

technology in Indian Evidence Act by amending Section 112 of the Act.⁴⁸⁸

Where it has held that when there is a conflict between a conclusive proof envisaged under law and a proof based on scientific advancement accepted by the world community to be correct, the latter must prevail over the former and the result of DNA test would prevail⁴⁸⁹.

At present legitimacy and illegitimacy of a child, can conclusively determine by DNA technology hence the Section 112 of Indian Evidence Act requires being amended in tune with admissibility of scientific evidence. There is no doubt that this new technology can be used as an effective tool in crime detection to accelerate crime control for a better society. But it cannot be implemented without hampering some basic human rights of the accused, right against self-incrimination and right to privacy. Hence there shall be a susceptible balance between introduction of this technology and interest of the individual.

An important problem in use of DNA as evidence is whether the detection methods are scientifically valid. Samples can also be contaminated with unknown genetic material such as bacteria, plant or animal secretion. The second aspect of DNA testing of forensic sample is reliability. Reliability involves several factors, including the procedure used, laboratory performance, laboratory record keeping, quality control and quality insurance. One of the major obstacles to widespread use of DNA testing in India is the non-availability of a comprehensive DNA Database and the enormous backlog of cases in laboratories.

⁴⁸⁸. Justice M. Jagannadha Rao, Law Commission of India 185th Report on Review of Indian Evidence Act 1872, 2003 at page 899.

⁴⁸⁹ Komalan v. Sreekumary, 2019 (4) KLT OnLine 3075.

5.7. THE DNA TECHNOLOGY (USE AND APPLICATION)

BILL OF 2019

Legislation for collection of DNA samples has not yet been passed in India. DNA evidence was first accepted by the Indian courts in 1985. The year 2003 marked the beginning of the initiations to draft a bill regulating the use of DNA samples for crime related reasons. A committee known as the DNA Profiling Advisory Committee to make recommendations for the drafting of the DNA profiling bill 2006 was established by the Department of Biotechnology. The bill eventually came to be known as the Human DNA Profiling Bill, 2007. The Bill faced a lot of criticisms as it didn't address the privacy concerns. In the years 2013 2015 and 2016 efforts were made to address this concern. In the year 2018, the Law Commission of India in its 271 report prepared the draft bill named the DNA Based Technology (Use and Regulation) Bill 2017. The Law commission examined various judicial pronouncements and constitutional provisions and recorded that DNA profiling was indeed used for disaster victim identification, investigations of crime, identification of missing persons and human remains and also for medical research purposes. If statutory recognition is given for such procedures it should be done legitimately as per the constitutional provisions. In 2019, The DNA Technology (Use and Application) Regulation Bill, 2019 was introduced in the Lok Sabha. The bill has not been passed and is subject to severe criticism.

5.7.1. HIGHLIGHTS OF THE BILL

- The Bill regulates DNA testing for identification of persons, in respect of matters listed in the Schedule. This includes offences under the Indian Penal Code, 1860, as well as offences under other laws such as the Immoral Traffic (Prevention) Act, 1956, the Medical Termination of Pregnancy Act, 1971, the Protection of Civil Rights Act, 1955, and the Motor Vehicles Act, 1988.
- The Schedule also allows for DNA testing in certain civil matters. This includes matters such as parentage disputes, issues related to pedigree, immigration or emigration, assisted reproductive technologies, transplantation of human organs, and for the establishment of individual identity.
- The central government will establish a National DNA Data Bank and Regional DNA Data Banks for each state, or two or more states, as it may deem necessary. The Bill establishes a National DNA Data Bank and Regional DNA Data Banks. Every Data Bank will maintain the following indices:
 - ✓ crime scene index,
 - ✓ suspects' or under trials' index,
 - ✓ offenders' index,
 - ✓ missing persons' index, and
 - ✓ Unknown deceased person's index.

➤ DNA Regulatory Board: - The Bill provides for a DNA Regulatory Board, which will supervise DNA Data Banks and DNA laboratories. The Secretary in the Department of Biotechnology will be the ex-officio Chairperson of the Board. The Board will comprise an additional 12 members including

- ✓ Experts in the field of biological sciences,
- ✓ Director General of the National Investigation Agency,
- ✓ Directors of the Central Bureau of Investigation, Centre for DNA Fingerprinting and Diagnostics, Central Forensic Science Laboratory, and
- ✓ Member of the National Human Rights Commission.

The functions of the Board include:

- ✓ supervising DNA laboratories and DNA Data Banks, including quality control,
- ✓ granting accreditation to DNA laboratories, and
- ✓ Developing modules for training manpower to deal with DNA related matters. Further, the Board will make recommendations to the central government on privacy protection in relation to the use and analysis of DNA samples.

The Board is required to ensure that all information relating to DNA profiles with Data Banks, DNA laboratories, and other persons are kept confidential. DNA data may only be used for the identification of persons.

- In case a person is arrested for an offence which carries punishment up to seven years, the authorities are required to obtain his written consent before collecting his bodily substances. If the consent is not given, the authorities may approach a Magistrate who may order the taking of bodily substances from the individual, if he is satisfied that DNA will confirm or disprove the individual's involvement in the alleged offence. If the offence carries a punishment of more than seven years of imprisonment or death, consent is not required.
- If a person is a victim, or relative of a missing person, authorities are required to obtain their written consent to collect bodily substances. In case of a minor or disabled person, the written consent of the parent or guardian is required. If consent is not given, the authorities may approach a Magistrate who may order taking of the bodily substances of the person.
- All DNA laboratories will share DNA data prepared by them with the National and Regional DNA Data Banks. In criminal cases, the laboratory is required to return the biological sample to the investigating officer after depositing the DNA profile with the DNA Data Banks. In all other cases, the laboratory will destroy the sample and inform the concerned person.
- The Bill allows for a one-time keyboard search for any DNA sample collected in a criminal investigation. This means that the DNA sample

can be compared with information in the index of the Data Bank, without the information from the sample being included in the index.

- DNA profiles in the crime scene index or missing persons' index will be removed from the DNA Data Banks on the basis of a written request by the individual. The DNA profile of a suspect will be removed after the filing of a police report or as per a court order. In the case of an under trial, the DNA profile will be removed on the basis of a court order.
- Offences and penalties: - The penalty for various offences such as:
 - ✓ unauthorized disclosure of information from the Data Bank,
 - ✓ obtaining information from the Data Bank without authorization, or
 - ✓ Using DNA sample without authorization is imprisonment up to three years and fine of up to one lakh rupees.

Further, the penalty for intentional tampering or destruction of biological evidence is imprisonment up to five years as well as fine of up to two lakhs rupees.

5.7.2. DEFECTS AND LOOPHOLES IN THE BILL WITH SUGGESTIONS FOR DEFECT FREE BILL

In efforts to cope with the changing needs of the criminal justice system, The DNA Technology (Use and Application) Regulation Bill, 2019 was formulated. The Bill aims to create a National DNA database for use in criminal investigation and civil matters. The bill postulates that the data shall be used for identifying offenders, suspects and victims in criminal investigation. It also

explores the use of DNA Evidence in civil disputes relating to parentage, immigration, organ transplantation.

But the bill is silent on many issues that directly affect its implementation.

- The Long Title of the Bill states that its purpose is to regulate the use of DNA technology to identify criminal offenders, victims, missing, and deceased persons. But it also deals with certain civil matters, about which the long title is silent.
- Regulation of laboratories that conduct DNA testing is an important point on which the bill is silent. The bill recommends the formulation of a Regulatory board. The board has been given wide discretionary power, even to amend the bill. Such wide powers, without any checks can lead to corrupting the system, and serve the ones it seeks to perish.
- The Bill requires consent of an individual when DNA profiling is used in criminal investigations or identifying missing persons. Moreover consent is necessary for offences above 7 years which is purely irrational however, such consent is not required in the case of DNA profiling for civil matters. Hence the irrational classification of consent for criminal matters and absence of consent in civil matters cannot be justified. Such irrational classifications make it violate of Article 14.

- The bill also fails to address adequately, the issues regarding protect data, transparency and use of Data and violation of the citizen's right to privacy.
- The bill treats data received for civil matters just like it treats the data for criminal matters there are no provisions for removal of DNA profiles procured for civil matters from the Data Banks. If DNA profiles related to civil matters were to be stored in the DNA Data Banks, there may be a violation of the right to privacy.
- The bill seeks to integrate DNA profiling methodology into the judicial system; however its implementation as postulated in the bill suffers from many procedural lacunas. The bill does not cover important points pertaining to privacy, monitoring and regulation. This leaves a huge scope for the provisions to be misused. No provisions with regard to removal of DNA profiles by DNA laboratories is specified in the Bill which leaves room for suspicion regarding the authenticity of safety of data. The Bill does not provide any mechanism for redressal of grievances in cases where the DNA profile is not removed from the data banks by the Director of the National DNA Data Bank. This may violate the fundamental rights of people and in such scenario may leave the effected person without any recourse.

- The bill attempts at covering a wide spectrum of evidences like photographs or video recording of body parts, to be used as a source for sample collection, however lack of detailed provisions regarding the same lead to vagueness in the bill, regarding how things are to be carried out.

Hence the bill should be brought to limelight after the removal of the above said defects as it is not equipped to effectively use DNA technology and is prone to mismanagement

5.8. CONCLUSION

In every criminal justice system, the DNA technology plays a vital role because of its uniqueness and use for identification of persons with great accuracy in crime detection. The DNA test indeed is the most reliable form of scientific technique used by investigating agencies. As per Section 53 Cr P C, if there are reasonable grounds for believing that examination of body of arrested person will afford evidence as to the commission of crime then medical examination can be conducted by registered medical practitioner. The scope of this provision was expanded by the Code of Criminal Procedure (Amendment) Act, 2005 so as to include the examination of blood, blood stains, semen, swabs in case of sexual offence, sputum and sweat, hair samples and finger nail clippings, by the use of modern and scientific technique including DNA profiling and such other tests which the registered medical practitioner thinks necessary in a particular case. The courts in India also

clarified that DNA and such other tests used in the sections 53, 53A 54 of the Cr. P.C. are confined to include only those tests which involved examination of physical evidence does not come within the scope of Right against self-incrimination under Article 20(3). Hence samples of DNA can be collected without the consent of accused person as it is physical evidence used for the purpose of comparison. The courts in India have considered evidence of DNA experts as expert evidence like forensic, ballistic, chemical examiners etc. The family courts also have power to order a person to undergo medical test and passing of such an order is not in violation of the right to personal liberty under Article 21 of the Constitution of India. If the respondent refuses to submit himself to medical examination, the court would be entitled to draw adverse inference against him. When there is a conflict between a conclusive proof envisaged under law and a proof based on scientific advancement accepted by the world community to be correct, the latter must prevail over the former. The taking of blood samples in consonance with the procedure established by law for the purpose of investigation is not violative of right to privacy which is guaranteed right under Article 21 of the Constitution of India and will not amount to self-incrimination under Article 20(3), as they are physical evidences which are used for the purpose of comparison. A comparative perspective of the UK and US scenario evinces that there are specific legislations that authorize the collection of samples and hence the courts have a structured role in interpreting those laws as against the blanket space available to the Courts in India owing to the lack of specific legislations on the matter. It

is long overdue that the courts in India recognize the validity of DNA evidence and incorporate the same through specific provisions in Indian Evidence Act, 1872 and in Code of Criminal Procedure Code, 1973 to comprehend modern scientific techniques or any other specific legislation to deal with such matters.

In this parlance it is worth noting that the developed countries have introduced legislations in tune with scientific techniques. Though we have provisions for medical examination in Cr P C and provision for admissibility of expert opinion under Indian Evidence Act, the lack of having no specific legislation to deal with the scientific evidences leaves a big vacuum. The DNA Technology (Use and Application) Bill of 2019 is pending before the Parliament is a positive step in this regard and the Bill directs the government, to establish a National DNA Data Bank and a DNA Profiling Board, and use the data for various specified forensic purposes. However the Bill faced severe criticism regarding the privacy and security concerns which were unaddressed. So the need of the hour is the enactment of a specific legislation in order to effectively use such evidences as valuable evidence in the justice delivery system.

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CHAPTER VI

EMERGING TRENDS IN CRIMINAL INVESTIGATION - ISSUES AND CHALLENGES

**“It has become appallingly obvious that our
technology has exceeded our humanity.”**

- Albert Einstein E

6.1. INTRODUCTION

The criminal justice system has been a part of human society from the beginning. In the olden days, the system was a rudimentary set of rules that “set an example” against doing acts considered as crime. With the passage of time the system evolved to achieve “Justice” rather than setting an example and justice can be achieved only when the complete facts or the truth is known. Investigation is the means to find out that truth. In criminal investigation interrogation of suspects plays a vital role in extracting the truth. Earlier confession and third degree methods have been used to extract statement from the accused regarding the commission of crime. In today’s world where criminals are hardened, hence no information can be extracted by the above said methods. Therefore, demand of supplemental methods for detecting deception has increased concomitantly. Apart from being gross violation of human right, deception detection methods have been used as an effective tool,

as it helps the investigating agencies to read the mind of suspect and to dig out concealed information.

Investigation of crime cannot be effective by using the age old techniques of torture and custodial violence during interrogation. There should be a proper balance between the rights of the victim as well as that of the accused. In order to punish a criminal according to the law of the land, there should be adequate evidence regarding the involvement of the accused. As the crimes as well as criminals are high tech now, criminal justice system requires potential use of forensic science tools along with skilled police personnel for investigation. In *D.K. Basu v. State of West Bengal*⁴⁹⁰, Supreme Court rightly held that, “there is a need to develop scientific techniques and methods for investigation and interrogation of accused as custodial deaths and torture is nothing else but a blow at rule of law”.

Brain Mapping, Narco Analysis and polygraph test were emerged as the most powerful branch in helping law enforcement agencies in the administration of criminal justice system. The investigating agencies have carried out these tests in a number of high profile cases such as the Arushi Talwar murder case, Tandoori Murder case, Godhara Carnage, Ajmer Dargah Blast case etc. Modern methods like polygraph and brain mapping are non-invasive methods that will detect deception without causing physical or mental injury to the subject. Rapidly these scientific techniques became an alternative of third degree physical torture in police custody.

⁴⁹⁰ *D.K. Basu v. State of West Bengal*, AIR 1997 SC 610.

6.2. NARCO ANALYSIS

Narco analysis is otherwise called “Drug Hypnosis”⁴⁹¹. It is considered to be the most controversial tool of interrogation and has got serious criticism worldwide due to its adverse effect on right to health. The word narco is derived from the Greek word NARKE – meaning anesthesia. Black’s Law Dictionary defines as “it is a process of injecting truth serum drug into patient to induce semi-conscious and then interrogating the patient”⁴⁹². It is often referred as “truth serum” and was first used in psychiatric proceedings to facilitate communication with the emotionally disturbed patients⁴⁹³. The idea was first developed by rural Texas physician Robert House in the 1920’s⁴⁹⁴. He discovered that Scopolamine, the drug which he used as an anesthetic in his obstetrics practice, could also result in patients revealing truthful information. The term narco analysis was invented by Horseley. It is founded on the supposition that a person might be able to lie by using his intellect and, owing to the injection of certain barbiturates, this ability for creativity is obstructed or neutralized by leading him to a semi-conscious state⁴⁹⁵.

Narco Analysis is performed by intravenous administration of a hypnotic sedative, sodium pentothal, sodium amytal and scopolamine to the

⁴⁹¹ Justice K Padmanabhan Nair, *Polygraph, Brain Mapping, and Narco Analysis* III NUALSLJ 38 (2009).

⁴⁹² BRYAN A GARNER, BLACK’S LAW DICTIONARY, (Publisher 2009).

⁴⁹³ BARRY A. J. FISHER & DAVID R. FISHER, *TECHNIQUES OF CRIME SCENE INVESTIGATION* (CRC Press, London 2007)

⁴⁹⁴ Hrishty Banerjee, *Law and Narco Analysis* XXVII Legal News and Views, ISI, Delhi 6 (2013).

⁴⁹⁵ DR. LILY SRIVASTHA *LAW RELATING TO SCIENCE AND TECHNOLOGY* 267 (Thomson Reuters 2016).

subject. The drug is dissolved in 3000 ml of water and administered within 3 hours. The dose may vary depending on the age, sex, health and other physical conditions of the individual. The rate of administration is controlled to slow the subject (the accused) into a hypnotic trance resulting in a lack of inhibitions. The subject is then interrogated by the Psychiatrist / Forensic Psychologist in conjunction with the investigative agency. The anaesthesia doctor monitors and maintains the hypnotic trance condition of the subject. The revelations made at this stage are recorded in both video and audio cassettes; The Forensic Psychologist prepares a report on the revelations that will be accompanied by audio-video recordings. The drug causes the condition of hypnosis. Questions are put to the suspect at this stage and his/her answers are recorded. In this body invasive test, a suspect is administered drugs, the rate of administration of which is controlled, so as to slowly drive the suspect into the state of hypnotic trance and to reveal answers to questions carefully designed and persistently repeated. In order to reduce the ambiguity of the drug interrogation recorded in both video and audio cassettes⁴⁹⁶.

Today psychoanalytical and narco analytical test are carried out to interpret the behaviour of suspect, accused or the criminals⁴⁹⁷. The report prepared by the experts after the narco examination will be useful in the process of collecting the evidence. Revelations made by the person under such condition are usually further corroborated by the investigating agencies.

⁴⁹⁶. Rama Chandra Reddy v. state of Maharashtra, 2004 All MR (Cr) 1704.

⁴⁹⁷. DEEPAK RATAN AND MOHD HASSAN, FORENSIC SCIENCE IN INDIA AND WORLD 357 (Allahabad alw agency 2008).

6.3. POLY GRAPH OR LIE DETECTOR TEST

Whenever a police officer is faced with the task of deception, the first thing that comes to mind is the polygraph, popularly known as lie detector. It is an instrument which measures and records several physiological responses such as blood pressure, pulse, respiration, breathing body temperature and skin conductivity⁴⁹⁸.

The origin of the polygraph examination was traced back to the efforts of Lombroso, a criminologist who experimented with a machine and he measured blood pressure and pulse to assess the honesty of suspected criminals. Since the development of the polygraph, it has been widely used by the police in criminal investigations, particularly in the USA and Japan. The Lie Detector Test is an examination carried out by a number of probes attached to the body of the person interviewed by the expert. The heart rate, the conductivity of the skin, is measured. The underlying theory of this test is that when people lie, they also get measurably wretched about lying. The heart beat increases, the blood pressure increases, the breathing rhythm changes, the sweat increases; the basis for this physiological characteristic is the questioning of the subject, the answers of which the investigator knows. Deviation from the base line for truthfulness is taken as a sign of lies. There is therefore no direct invasion of the body here. In this test, the polygraph which gives this reaction is used, and the expert would then explain these reactions to the court, which

⁴⁹⁸ · MARVIN D'SOUZA & R.P.KATARIA, FORENSIC SCIENCE IN CRIMINAL TRIAL AND INVESTIGATION 272 (Orient Publishing Company 2016).

would be his reading of the polygraph from which his conclusion would flow, which should be accepted or not accepted by the judge on the assessment of the statement and the objections raised therein. In this case, the witness may, or may not, answer the questions. Response to the questions as recorded in the polygraph analysis of which it is sought as evidence, if and when the occasion arises⁴⁹⁹.

Polygraph is a very strong aid which may be used to find out the truth and involvement of a person in a particular crime. During polygraph examination, the subject is asked series of questions and the false answers will produce distinctive marks, hence it helps the investigating agency to get an idea whether the suspect is actually responsible for the crime being investigated. The latest polygraph machine comes in a laptop version with web camera portable and easy to carry from one place to the other. The supervisory officer can access the entire process sitting at a different place if the system is connected on LAN.⁵⁰⁰

6.4. BRAIN MAPPING

Credit for developing the technique of “Brain Mapping” or Brain Fingerprinting” goes to Dr. Lawrence Farwell of USA, who developed the technique in the year 1985 and it was patented in 1995⁵⁰¹. The suspect is interviewed and interrogated in order to find out whether he has concealed any

⁴⁹⁹. Rma Chandra Ram Reddy v. State of Msharashtra, 2004 AII MR (Cri) 1704.

⁵⁰⁰. BARRY A. J. FISHER & DAVID R. FISHER, TECHNIQUES OF CRIME SCENE INVESTIGATION (CRC Press, London 2007).

⁵⁰¹. MARVIN D’SOUZA & R.P.KATARIA, FORENSIC SCIENCE IN CRIMINAL TRIAL AND INVESTIGATION 199 (Orient Publishing Company 2016).

information⁵⁰². The technique is considered to be as sensitive and specific as the science of fingerprints is that no two persons would have exactly the same brain fingerprint patterns. The purpose of the tests is to identify the perpetrator of the crime by measuring brain waves. It is a scientific technique to find out whether or not specific information is stored in the brain of an individual. The process involves the measurement of brain-wave responses to words, phrases, sounds or images. These are mixed with other irrelevant items in a sequence. The concept is that the actual perpetrator would definitely respond to the details of the crime shown, while the innocent person would have no way of knowing or recognizing the data. The band is going to be tied over the head. Instead of being questioned, a list of photos is shown to the person who is subject to this test. In this situation, the person is interviewed and interrogated to confirm whether he/she is hiding anything or not.

Extracting the truth is not an easy task, which plays a vital role in criminal investigation. In such a situation these types of forensic tests provide immense help to investigators. For the first time in India this technique was applied in *Godhra Carnage Prove case*⁵⁰³. After that in *Arun Bhatt kidnapping case* which gained the attraction of the media as the accused appeared before the Hon'ble Supreme Court and National Human Right Commissions against

⁵⁰² · MARVIN D'SOUZA & R.P.KATARIA, FORENSIC SCIENCE IN CRIMINAL TRIAL AND INVESTIGATION 272 (Orient Publishing Company 2016).

⁵⁰³. The Godhra Train Burning was an incident that occurred on the morning of 27 February 2002, in which 59 Hindu pilgrims and karsevaks returning from Ayodhya were killed in a fire inside the Sabarmati Express train near the Godhra railway station in the Indian state of Gujarat.

undergoing this test. It was in news very recently, in *Sister Abaya murder case*, as this test helped the investigating agencies to find out the real culprit.

Though it has been used as a scientific tool, it is subject to severe criticism because of the admissibility and reliability of these tests. Hon'ble Supreme Court held that the field of criminology has expanded rapidly over the last few years and the demand for additional methods of detecting deception and improving the efficiency of interrogation has increased simultaneously. The investigative agency has the statutory right to investigate the crime and to find out the truth and to reach the accused⁵⁰⁴.

In India, the admissibility of scientific evidence was a serious debate in *Selvi v. State of Karnataka*⁵⁰⁵, where the Hon'ble Supreme Court held that such a scientific test could not be carried out without the consent of the accused

6.5. ADMISSIBILITY OF SCIENTIFIC EVIDENCE UNDER CONSTITUTION OF INDIA, 1950

Application of these scientific tests involves fundamental questions relating to human and constitutional rights. Human rights are moral claims which are inalienable and inherent in all individuals by virtue of their humanity alone, irrespective of caste, colour, creed, and place of birth, sex, cultural difference or any other consideration. Universal declaration of Human Right, 1948 European Conventions for protection of Human rights and 1950, and Economic Social and Cultural right, 1966 contains an elaborate list of Human

⁵⁰⁴. Santhok ben Sharma bhai jadeja v. State of Gujarat, 2008 CriLJ 68.

⁵⁰⁵. Selvi v. State of Karnataka, AIR 2010 SC 1974; (2010) 7 SCC 263.

Right intended as common standard of achievement for all nations and all people.

Many countries have adopted in their constitution and incorporated in their statute the basic principles and philosophy generated by these convention on Human rights. The Indian Constitution as well as our procedural law has many significant provision of above conventions. But these rights are not absolute and are subject to some reasonable restrictions in the interest of public welfare public order morality etc.

6.5.1. SELF INCRIMINATION

The main provision regarding crime investigation and trial in Indian Constitution is Article 20(3) which deals with privilege against self-incrimination⁵⁰⁶. The rules of evidence and principle of fair trial ensure that it is the duty of prosecution to prove the case beyond reasonable doubt. In an adversarial criminal justice system like ours it is the right of accused not to be compelled to be a witness against himself. It is based on the legal maxim “*nemo tenetur prodere accusare seipsum*”, which means “*No man is obliged to be a witness against himself*”. This provision is inspired from the 5th Amendment of the U S Constitution⁵⁰⁷ which prohibits the government from

⁵⁰⁶ See INDIA CONST. art. 20 cl. 3. No person accused of an offence shall be compelled to be a witness against himself.

⁵⁰⁷ According to 5th amendment of US Constitution, No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

forcing any person to produce any sort of evidence that would incriminate that person⁵⁰⁸. International Covenant on Civil and Political Right 1966 also provides not to be compelled to testing against himself or to confess guilt⁵⁰⁹. This privilege is available to every person against whom formal accusation has been framed⁵¹⁰. Investigating authorities are prevented from doing any form of compulsion either direct or indirect, physical mental or psychological in order to extract information. Constitution of India does not permit oneself to be exposed to criminal prosecution, either at present or in future through any statement. Hon'ble Supreme Court has widened this capacity by interpreting the word 'witness to include both oral and documentary⁵¹¹. This protection is available against testimonial compulsion and cannot be claimed if he is not an accused at the time of making the statement. The purpose of this protection is to prevent inhuman treatment and torture at the hands of investigating agencies to extract confession.

The privilege under clause (3) is confined only to an accused i.e. a person against whom a formal accusation relating to the commission of an offence has been levelled which is in the normal course may result in the prosecution. A person against whom a first information report has been recorded by the police and investigation has been ordered by the Magistrate can also claim the benefit of the protection. Further, the guarantee in Article 20 (3)

⁵⁰⁸. No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb.

⁵⁰⁹. INDIA CONST. art. 14 cl. 3(g).

⁵¹⁰. M.P. Sharma v. Satish Chandra, AIR 1954, SC300.

⁵¹¹. State of Bombay v. Kathi Kalu Oghad, AIR 1961 SC 1808.

is against the compulsion to be 'a witness'. In *State of Bombay v. Kathi Kalu Oghad*⁵¹², a Bench of the Supreme Court consisting of eleven judges held that:

"It is well established that clause (3) of Article 20 is directed against self-incrimination by the accused person. Self-incrimination must mean conveying information based upon personal knowledge of the person giving the information and cannot include merely the mechanical process of producing documents in court which may throw a light on any of the points in the controversy, but which do not contain any statement of the accused based on his personal knowledge."

The third component of Article 20 (3) is that it is a prohibition only against the compulsion of the accused to give evidence against himself. The privilege against self-incrimination thus enables the maintenance of human privacy and observance of civilized standards in the enforcement of criminal justice.

In *Kathi Kalu Oghad*⁵¹³ there was a disagreement between the majority and minority opinions on whether the expression 'to be a witness' was the same as 'to furnish evidence'. In that case, this Court had examined whether certain statutory provisions, namely section 73 of the Evidence Act, section 5⁵¹⁴ and 6⁵¹⁵ of the Identification of Prisoners Act, 1920 and section 27 of the Evidence

⁵¹². *State of Bombay v. Kathi Kalu Oghad*, AIR 1961 SC 1808.

⁵¹³. *State of Bombay v. Kathi Kalu Oghad*, AIR 1961 SC 1808.

⁵¹⁴. The Identification of Prisoner's Act, 1920, S. 5, Acts of Parliament, 1920 (India). Power of Magistrate to order a person to be measured or photographed.— If a Magistrate is satisfied that, for the purposes of any investigation of proceeding under the Code of Criminal Procedure, 1898 (5 of 1898), it is expedient to direct any person to allow his measurements or photograph to be taken, he may make an order to that effect, and in that case the person to whom the order relates shall be produced or shall attend at the time and place specified in the order and shall allow his measurements or photograph to be taken, as the case may be, by a police officer;

⁵¹⁵. The Identification of Prisoner's Act, 1920, S. 6, Acts of Parliament, 1920 (India). Resistance to the taking measurements, etc.—(1) If any person who under this Act is required to allow his measurements

Act were compatible with article 20(3). Under section 5 and 6 of Identification of Prisoners Act, 1920 first class judicial magistrate is competent to order taking of specimen fingerprint, handwriting, thumb impression, impression of foot, palm fingers, and showing parts of body by way of identification, for an investigation or proceedings under Cr P C and that would not be hit by Art 20(3) of the Indian Constitution as being witness against himself⁵¹⁶. Section 73 of the Evidence Act empowered courts to obtain specimen handwriting or signatures and finger impressions of an accused person for purposes of comparison⁵¹⁷.

A specimen handwriting or signature or finger impressions by themselves are no testimony at all, being wholly innocuous, because they are unchangeable; except, in rare cases where the ridges of the fingers or the style of writing have been tampered with. They are only materials for comparison in order to lend assurance to the Court that its inference based on other pieces of evidence is reliable. They are neither oral nor documentary evidence but belong

or photograph to be taken resists or refuses to allow the taking of the same, it shall be lawful to use all means necessary to secure the taking thereof. (2) Resistance to or refusal to allow taking of measurements or photograph under this Act shall be deemed to be an offence under section 186 of the Indian Penal Code, 1860.

⁵¹⁶. See 1. Selvi v. State of Karnataka, (2010) 7 SCC 263 (Three-Judge Bench) 2. State through SPE & CBI v. M. Krishna Mohan, AIR 2008 SC 368 3. State of Bombay v. Kathi Kalu Oghad, AIR 1961 SC 1808 (Eleven-Judge Bench).

⁵¹⁷. Indian Evidence Act, 1872, S. 73, Acts of Parliament, 1872, (India). Comparison of signature, writing or seal with others admitted or proved.—In order to ascertain whether a signature, writing or seal is that of the person by whom it purports to have been written or made, any signature, writing, or seal admitted or proved to the satisfaction of the Court to have been written or made by that person may be compared with the one which is to be proved, although that signature, writing, or seal has not been produced or proved for any other purpose. The Court may direct any person present in Court to write any words or figures for the purpose of enabling the Court to compare the words or figures so written with any words or figures alleged to have been written by such person.

to the third category of material evidence which is outside the limit of ‘testimony’⁵¹⁸

*The word involuntary is defined as Compelled testimony is read as evidence procured not merely by physical threats or violence but by psychic torture, atmospheric pressure, environmental coercion, tiring interrogative prolixity, overbearing and intimidatory methods and like*⁵¹⁹

The question whether scientific test used for the purpose of investigation is violative of Article 20(3) was decided in *State of U P v. Boota Singh*⁵²⁰. In this case Hon’ble Supreme Court held that “If the accused is directed to provide specimen signature and handwriting samples then it does not amount to testimonial compulsion”. Similarly, when an accused is directed to undergo a scientific test then he is not directed to give any specific statement. It is in a way searching of a person and under Indian law search and seizure is permitted and is not violative of Article 20(3) as it is not the act of the accused but the act of the Investigating Officer or the Expert while conducting the test which results into evidence’. Court referred its earlier judgment in *State of Bombay v. Kathi Kalu Oghad*⁵²¹ where it had been held that giving of thumb impression, foot, palm or specimen writing or showing parts of the body to police officers by way of identification would not be hit by Article 20(3) of the Constitution⁵²².

⁵¹⁸ Rithesh sinha v. State of UP, 2019 SCC OnLine SC 956.

⁵¹⁹ Nandini Satpathy v. P L Dani and Another AIR 1978 SC1025.

⁵²⁰ State of U P v. Boota Singh, AIR 1978 SC 1770.

⁵²¹ State of Bombay v. Kathi Kalu Oghad, A.I.R. 1961 SC 1808.

⁵²² State of Bombay v. Kathi Kalu Oghad, AIR 1961 SC 1808. This position was also upheld

In India the main controversy against usage of these scientific test like Narco Analysis, Polygraph, and Brain Mapping were arose on when Bombay High Court pronounced judgement in *Ramchandra Reddy v. State of Maharastra*⁵²³. The question considered in this case was whether interrogative use of narco analysis, polygraph or Brain Mapping were violative of 20(3) of Indian Constitution. Court held that by using these test there were no compulsion to the accused or witness to incriminate himself hence no question of violation of 20(3) of Constitution. Article 20(3) provides privilege against testimonial compulsion. But there were no question of compulsion in these scientific tests hence there is no question of law as to the interpretation of the constitution.⁵²⁴ The Court concluded that administration of these scientific tests even against will of a person does not violate Constitutional right guaranteed to accused person.

In *People's Union for Civil Liberties v. Union of India*⁵²⁵, it was held that a person becomes a witness only when he makes an oral or written statement in or out of court in relation to any person who is accused of any offence. The giving of any sort of identification as for instance 'impression of thumb or foot or palm or fingers or giving of specimen of hand-writing' is not at all covered under Article 20(3). For testimonial compulsion it is essential that he should forward his personal knowledge about happening or non happening of an event. The practice of producing document which may throw

in *Ravindra Kumar Pal v. Republic of India*, AIR 2011 SC 1436.

⁵²³ *Ramchandra Reddy v. State of Maharastra*, 2004 All MR (Cri) 1704.

⁵²⁴ *Ramchandra Reddy v. State of Maharastra*, 2004 All MR (Cri) 1704 at para 26.

⁵²⁵ *People's Union for Civil Liberties v. Union of India*, AIR 2004 SC 456.

light on any of the controversial point does not amount to compulsion.⁵²⁶ Hence information collected through these scientific tests like polygraph, brain mapping and narco analysis would not amount to testimonial compulsion.

The law laid down in above case was also upheld in *Arun Gulab Gavali v. State of Maharashtra and Ors*⁵²⁷. In this case petitioner approached this court to prohibit the respondents from undertaking Narcotic Analysis Test, lie detector test or a brain mapping test on the petitioner as well as to withdraw the notice dated 16th November, 2005 of Magistrate Court issued for taking the petitioner to Bangalore.

The petitioner contended that there was no procedure contemplated under Code of Criminal Procedure to compel an accused or witness to undergo narco Analysis. It was also contended by the petitioner that such test involves injection of certain medicine to the body of accused which may give, possibility of some other diseases in the body of the petitioner. He had also submitted that any admission or statement in nature of confession being disclosed in the course of investigation by adopting this procedure would amount to obtaining confession from person in relation to the alleged offence in respect of which investigation is carried out and will not admissible and not relied upon. According to the learned prosecutor, this test will not violate any of the rights guaranteed under Article 20(3) of the Constitution and Article 21. Court concluded that the test is conducted in the course of investigation in relation to a crime and the investigating machinery is entitled to undertake

⁵²⁶ State of Bombay v. Kathi Kalu Oghad, AIR 1961 SC 1808.

⁵²⁷ Arun Gulab Gavali v. State of Maharashtra and Ors, 2006 CriLJ 2615.

scientific tests to identify guilty person and to collect necessary evidence in the course of investigation.

Another important decision which was concerned with need of scientific test was *Rojo George v. Deputy Superintendent of Police*⁵²⁸ where the petitioner contended that narco analysis test is extremely dangerous as it is conducted after administering sodium pentathol which would affect the nervous system. He had also argued that in every case the dosage may vary according to the age, sex, physical and mental condition. Hence it is difficult to determine the correct usage. The petitioner submitted that he was only 24 and subjecting him to narco analysis would have far reaching consequences which would amount to violation of article 20(3). But the CBI averred that the test was conducted by experts after taking all precaution. Even if it has any adverse reaction, which is remote possibility as it will happen when any medicine is used. The Court finally opined that this test does not violative of Article 21 or 20(3).

*Santok ben Sharman bhai Jadeja v. State Of Gujarat*⁵²⁹, regarding the legality of this scientific test court held that Narco analysis conducted under the supervision of medical team, the element of risk is minimal which means risk is infact part of life and pervades in most human activities and therefore the test cannot be condemned.

⁵²⁸. *Rojo George v. Deputy Superintendent of Police*, 2006 (2) KLT 197.

⁵²⁹. *Santok ben Sharman bhai Jadeja v. State Of Gujarat*, 2008 CriLJ 68, (2008) 1 GLR 497, 2008 (2) KLT 398 Petitioner has prayed for an appropriate order to quash and set aside the order dated 13.6.2007 passed by the learned JMFC, Junagadh for granting permission for narco Analysis Test and Brain Mapping Test of the petitioner.

Under the provisions of the Criminal Procedure Code, the prosecution agency is legally authorized to investigate the crime and to find out the truth and to reach out to the accused persons who have committed serious offences. The Investigative Officer shall be the master of the investigation and no agency may interfere with the investigation carried out by the Investigative Officer, not even the Magistrate, until such time as an appropriate report is submitted by the Investigative Officer as provided for in the Criminal Procedure Code. Thus, taking into account the various provisions of the Code of Criminal Procedure of the Law of Sections 156 to 159 and other related provisions, the collection of evidence by a police officer is permitted under the law.⁵³⁰

Conducting the aforesaid tests on accused is to be considered as process of collection of evidence by the investigating agency. These tests are scientific methods in furtherance of the investigation. These are valuable technique which would help the investigating agency to further investigate the crime when the investigating agency finds itself clueless and there are no other ways in the investigation. As it is the statutory right of investigating agency to conduct investigation in order to find out truth they can use any methods to extract truth except third degree. Investigating officers cannot be prevented to interrogate on the ground that these scientific test are violative of Constitutional right. Court also reminded that while conducting these test due care should be taken by medical experts before subjecting an accused to these test and special care and necessary precautions to be taken in the case of narco analysis.

⁵³⁰. Santok ben Sharman bhai Jadeja v. State Of Gujarat, 2008 CriLJ 68 at para 19.

6.5.2. RIGHT TO SILENCE

Constitution of India does not guarantee right to silence as right of a person but protective scope of Article 20(3) extends to investigative stage in criminal cases when read with section 161(2) of the Code of Criminal Procedure, which protect accused person, suspect as well as witnesses who are examined during investigation⁵³¹.

Section 161 empowers the police officer investigating the case to examine orally any person who is supposed to be familiar with the facts and circumstances of the case. These provisions are intended to ensure that citizens are cooperating with the investigation and that they cannot override the constitutional protections granted to accused persons. For example, section 161(2) stipulates that when a person is examined by a police officer, he or she is not bound to answer those questions, the answers of which would tend to expose him or her to a criminal charge or a penalty or forfeiture. It is evident from this section that it allows a person to choose silence in response to a police officer's questioning during the investigation stage.

The right to refuse to answer questions that may incriminate a person is a procedural safeguard that has gradually evolved into common law and is closely linked to the 'right to a fair path.

⁵³¹. See The Code of Criminal Procedure, 1973, S. 161 (2), Acts of Parliament, 1973 (India). Such person shall be bound to answer truly all questions relating to such case put to him by such officer, other than questions the answers to which would have a tendency to expose him to a criminal charge or to a penalty or forfeiture.

In *Nandini Sathpathy v. P.L. Dani*⁵³², it was held that “no one could forcibly extract statements from accused who has right to keep silence during the course of interrogation or investigation”.

Those who are against this test contend that these types of scientific test are violative of right to silence also. Article 20(3) and section 161(2) Cr P C protects an individual’s choice between speaking and remaining silent, irrespective of subsequent testimony proves to be inculpatory or exculpatory. But Hon’ble Supreme Court in *Dinesh Dalmia v. State*⁵³³ observed that where the accused had not allegedly come forward with the truth, these type of scientific tests are resorted by the investigation agency and such a course does not amount to testimonial compulsion.

In this case Investigating agency had approached the court for conducting this scientific test to the accused Dalmia. But the accused contended that if he undergoes these scientific tests he will face health hazard and his physical frame will be endangered and this test has no scientific basis. Contention of the State was that these are scientific test like MRI or CT scan. Its credibility can only be evaluated during the course of trial and without conducting this test they will not be in a position to come out with clinching testimony against the petitioner. Finally Court reached the conclusion that subjecting an accused to undergo this test will not amount to breaking his silence by force. He may be taken to laboratory against his will but a revelation

⁵³². *Nandini Sathpathy v. P.L. Dani*, AIR 1978 SC 1025.

⁵³³. *Dinesh Dalmia v. State*, 2006 CriLJ 2401. In this case huge amount has allegedly been misappropriated by the accused and the investigating agency is completely in the dark as to the end use of such a huge amount.

during such test is quite voluntary and doesn't amount to compelling a witness to give evidence against himself.

The underlying idea in article 20(3) is to compel an accused to give a statement which cannot be viewed as information gathered while undergoing a test. The purpose of these test are to elicit information from the suspects devoid of any physical coercion and to avoid third degree. These tests are only an aid to investigating agency hence is used in demanding situations.

Though the critics says that statements collected through these scientific test amounts to compelled testimony within the meaning of Article 20(3) , but it is to be noted that it aims to control the abuse of power of Police by using coercive means such as third degree. If these tests are done properly, after following all the precautionary procedures it will fall within the objective of criminal trial which intend to give fair trial to accused as well as to the victim.

Sophisticated crimes and criminals are on an alarming rate leaving no traces for the commission of offences .This is a serious setback faced by the investigative agencies. Hence the provision under Article 20(3) is stale and needs to be revamped in the light of this technological era where the crimes go undetected in the pretext of violation of compulsion to be a witness against himself. Hence it is necessitated that an amendment be carried in Article 20 (3) of the constitution for conducting this scientific test and other strictly according to the procedure established by law.

6.5.3. RIGHT TO LIFE AND PERSONAL LIBERTY

Article 21 is considered to be the heart of the Indian Constitution⁵³⁴. The object of Article 21 is to protect and preserve certain human right interferences by the state⁵³⁵. Honourable Supreme Court defined the term “personal liberty” immediately after the constitution came into force that was in the case of *A.K. Goplan v. State of Madras*⁵³⁶. In this case it was held that ‘Personal liberty’ includes nothing more than physical freedom such as freedom from arrest and detention from wrongful conviction and false imprisonment⁵³⁷. However this restrictive interpretation has not been followed in later judgements. In *Maneka Gandhi v. Union of India*⁵³⁸, Hon’ble Supreme Court expanded the scope of expression personal liberty, and held that the word personal liberty covers a variety of rights. It also held that any law which deprive the right to life and personal liberty stand the test of Article 21 along with the test of Article 14 and 19. As per Article 21 liberty of a person shall be deprived only in accordance with the procedure established by law. Though Article 21 explicitly covers right to life and personal liberty, there are several other rights which will come within the ambit of Article 21⁵³⁹. The term life includes all those aspect of life

⁵³⁴. See Article 21 of Indian Constitution guarantees “No person shall be deprived of his life or personal liberty except according to procedure established by law. “The Article prohibits the deprivation of the above rights except according to a procedure established by law.

⁵³⁵. This right guarantees right to life and personal liberty which are necessary to survive in a society. Personal liberty is the right of an individual to be free from restrictions or encroachment of his personality whether directly imposed or indirectly brought about by calculated measure.

⁵³⁶. *A.K. Goplan v. State of Madras*, 1950 AIR 27.

⁵³⁷. Any law which deprives the life or personal liberty of any person must satisfy the requirements of both Article 19 and Article 21 as well.

⁵³⁸. *Maneka Gandhi v. Union of India*, 1978 SCC 2488.

⁵³⁹. After the decision of *Maneka Gandhi*, scope of Article 21 includes Right to live with human dignity, Right to livelihood, Right to shelter, Right to privacy, Right to health and

which go to make a man's life meaningful, complete and worth living⁵⁴⁰. Those who are against this test contended that it is a violation of procedure established by law. As there is no procedure under the Code for using this scientific tool for investigation this can be viewed as clear violation of Article 21. They also contend that in *Maneka Gandhis case*⁵⁴¹ it was held that procedure for depriving the liberty of person should be fair reasonable and just.

These scientific tests are not violative of Article 21. Investigation is the statutory right of police officers and its purpose is to collect evidence. Code of criminal procedure makes it clear that investigation includes all procedure under the Code for collection of evidences. Even in the absence of specific procedure, due to changing circumstances these scientific tests can be used as an interrogative tool.

In *Rithesh Sinha v. State of UP*⁵⁴², important questions considered by the court is whether the court is competent to authorize the Investigating Agency to record the voice sample of a person accused of an offence in the absence of any specific provision in the Cr P C. Here, J. Ranjana Prakash Desai observed that;

'Judicial power should not be allowed to be entrapped within inflexible parameters or guided by rigid principles'. The court finally viewed that

medical assistance, Right to sleep, Right to die, Right to Education Right to free legal aid, Right to speedy trial etc.

⁵⁴⁰ Francis Corallie Mullin v. Administrator , Union territory of Delhi and others, 1981SSC 608.

⁵⁴¹ Maneka Gandhi v. Union of India, 1978 SCC 2488.

⁵⁴² Rithesh Sinha v. State of UP, 2019 SCC OnLine SC 956.

until explicit provisions are engrafted in the Code of Criminal Procedure by Parliament, a Judicial Magistrate must be conceded the power to order a person to give a sample of his voice for the purpose of investigation of a crime’.

Relying on the above decision it is clear that even in the absence of specific provision these scientific can be used in order to meet the changing circumstances.

6.5.4. RIGHT TO PRIVACY

After the decision of *Maneka Gandhi* case, the expression life was enormously include right to privacy, which is one of the important right implicit in Article 21. It was first time raised in *Karak Singh v. State of U.P.*⁵⁴³ where the minority judgement held that it is a part of right to life and personal liberty. Later it was discussed in *R Rajagopal v. State of Tamil Nadu*⁵⁴⁴ where Justice B.P Jeevan Reddy held “Right to privacy is implicit in right to life and liberty guaranteed to citizens under Article 21 of the Constitution of India”⁵⁴⁵

Though Constitution of India does not guarantee right to privacy as a fundamental right of person, the crucial argument against these scientific tests are that, it is a violation of right to privacy which can be included under article 21 of the Constitution. Narco Analysis has raised profound privacy concerns of

⁵⁴³. *Karak Singh v. State of U.P.*, AIR 1963 SC 1295.

⁵⁴⁴. *R Rajagopal v. State of Tamil Nadu*, AIR 1995 SC 264, 1994 SCC (6) 632, JT 1994(6) 514, 1994 SCALE (4) 494 (here the petitioners sought relief under Art 32 of the constitution to prevent the respondents from interfering with the publication of autobiography of Auto Shankar, a condemned prisoner as it was alleged that the autobiography reveals the nexus between the prisoner and high officials in police department. The court also discussed the right of the press to criticize and comment on the acts and conduct of public officials).

⁵⁴⁵. This rule is subject to an exception that if any publication of such matters is based on public record including court record, it will be unobjectionable. If a matter becomes a matter of public record the right to privacy no longer exists and it becomes a legitimate subject for comment of press and media.

the person by its invasion or the mental process of a subject. The person under the effect of drugs loses control over his mind and there is always a risk that a semiconscious mind may reveal personal information which are not relevant to the investigation and even innocent people might be named during interrogation which may later prove to be harmful to persons reputation.

But it is to be noted that Right to privacy is not an absolute right it can be reasonably curtailed⁵⁴⁶. Fetters can be put on right to privacy in the interest of State as stated by Supreme Court in *State of Gujarat v. Anirudh Singh*⁵⁴⁷.

Hon'ble Supreme Court also been held that it is the statutory duty of every witness who has the knowledge of the commission of the crime to assist the investigating officers during the course of investigation⁵⁴⁸. If a person is not willing to reveal the information to the investigating agencies an adverse impression can be taken against him. In *Bhagwan singh v. State of Punjab*⁵⁴⁹, the court held that, it may be the legitimate right of any police officer to interrogate or arrest any suspect on some credible material but must be in accordance with law. They are doing sacred duty of assisting the court by giving evidence relating to the commission of an offence.

For this reason, narco-analysis, brain mapping and polygraph testing is nothing but an efficient scientific method of investigation. In India, where the right to life is a fundamental right, there is also a sad picture of custodial

⁵⁴⁶. Rohit Shekhar v. Naryan Dutt Tiwari, (2001(4) RCR (Criminal) 307(Delhi).

⁵⁴⁷. State of Gujarat v. Anirudh Singh, (1997) 6 SCC 514

⁵⁴⁸. See The Code of Criminal Procedure, 1973, S. 161(c), Acts of Parliament, 1973 (India).

⁵⁴⁹. Bhagwan singh v. State of Punjab, (1992) 3 SCC 249

crimes, custodial rape, death, tortures. All these are violations of right to life, including the right to live with human dignity⁵⁵⁰. There are thousands of cases of custodial torture in which the accused involved a large number of injuries in order to extort information about theft and eventually the accused died⁵⁵¹. Newspapers are packed with such unfortunate incidents. Custodial crime is a violation of the fundamental rights of the accused to undergo a scientific test which is much better than allowing him to face a third degree.

Hence Narco – analysis, Brain-mapping and polygraph tests are nothing but efficient scientific methods of investigation. In India, where right to life is a fundamental right, a sad picture of custodial crimes is also present. Custodial Rapes, Deaths, torture all violate right to life which includes right to live with human dignity⁵⁵². There are thousands of cases of custodial torture, where accused implicated large number of injuries for the purpose of extorting information regarding theft and eventually accused die⁵⁵³. Medias are full of such unfortunate incidents. Custodial crime is violation of fundamental rights subjecting an accused to undergo a scientific test is much better option than to letting him face third degree torture.

As like any other fundamental right, right to privacy is not an absolute right and it is subject to reasonable restriction for the prevention of crime, disorder or protection of health or moral or protection of rights and freedom of

⁵⁵⁰ Haricharan v. State of M.P, 2011(2) RCR (Criminal) 330(SC).

⁵⁵¹ V. Shekhar v. State of Karnataka, 1991 Cri and J.1100

⁵⁵² Haricharan v. State of M.P. 2011(2) RCR (Criminal) 330(SC)

⁵⁵³ V. Shekhar v. State of Karnataka, 1991 CriLJ 1100.

others⁵⁵⁴. These scientific tests are not violative of right to privacy which is implicit in article 21 of the Constitution. Though, the right to privacy is recognized by the apex court through its various decisions. But it is not expressly provided under the constitution. In that scenario, it is difficult to adopt scientific investigative methods because whenever such technique is used the person against whom such technique used generally approach the higher courts for getting an order prohibiting the same on account of violation of privacy. The constitution should be amended to expressly mention that all the citizen of India shall have the right to privacy subject to reasonable restrictions for or the purpose of crime investigation or for the administration of criminal justice system;

6.5.5. RIGHT TO HEALTH

Earlier Right to health was a part of directive principle of State policy⁵⁵⁵ and it was the duty of State to look after the health of people at large. Later our judiciary has given recognition to right to health comes under the scope of Article 21 of Constitution. In *Vincent Panikurlangara v. Union of India & Ors*⁵⁵⁶ it was held that healthy body is the establishment of all human activities.

In *Rojo George v. Deputy Superintendent of Police*,⁵⁵⁷ the petitioner argued that this test was extremely dangerous as the drugs used in the test

⁵⁵⁴. V. Shekhar v. State of Karnataka, 1991 CriLJ 1100.

⁵⁵⁵. Article 38 of Indian Constitution imposes an obligation on the State that states will make sure about a social request for the advancement of government assistance of the individuals however without general health we can't accomplish it. It implies without general health government assistance of individuals is unthinkable

⁵⁵⁶. Vincent Panikurlangara v. Union of India & Ors, 1987 AIR 990, 1987 SCR (2) 468.

⁵⁵⁷. Rojo George v. Deputy Superintendent of Police, 2006 (2) KLT 197. The case centers around the missing of a seven year old boy, by name Rahul from Alappuzha. The boy was found playing

would affect the nervous system with sodium pentathol. He also argued that the dosage of the medicine depends very much on age health, etc. There is therefore no correct procedure. The petitioner stated that he was only 24 years old and that undergoing this test at a younger age would have the consequences of a physical and mental condition. This scientific test is therefore a violation of the right to health guaranteed by Article 21 of the Constitution. But the court held that, if this was done under the strict supervision of the medical team, there could be no infringement of the procedure laid down by law. Conducting brain mapping, polygraphs are like MRI and CT scans, and their credibility can be assessed on the trial. Court also asserted that techniques such as polygraph and brain fingerprinting are non-invasive methods that detect deception without causing physical or mental injury.

If the investigating authority convinces the conditions under which the test was carried out and the precautions taken by the medical personnel while administering the drugs to the accused, the right guaranteed to the accused will not be affected. The Narco analysis is neither barbarous nor irrelevant, because the doctors and psychotherapists claim that the doses consumed by the suspect are not that high or low, which could lead to a different and irrelevant response.

These tests are of assistance to investigative agencies for the collection of evidence and are very useful when it is necessary to obtain the necessary

in a playground wherein some other children were also playing. From the playground he had gone to drink water from a nearby water tap. Thereafter he vanished into the thin air. Initial investigation was conducted by the local police. They were not able to get any clue. The investigation was handed over to the Crime Branch. The Crime Branch was also not able to get any clue regarding the missing of the boy. Subsequently as per the order of this Court the investigation was handed over to the Central Bureau of Investigation and now the case is investigated by the CBISCB, Chennai.

information for the prevention of offences. Such a scientific test is an alternative to a third degree, but care must be taken to ensure that this procedure is not misused or abused by the investigating authorities

Such a scientific test cannot be regarded as a violation of Article 20(3) and Article 21 of the Constitution of India. But it could be seen as supporting the fundamental right. The right to a speedy trial is the right of both the accused and the victim. If it is not an expeditious trial, it cannot be regarded as a reasonable, fair and just procedure guaranteed by Article 21 of the Constitution. The use of modern investigation techniques helps to ensure a speedy and fair trial. If the investigation is not fair, both the accused and the victim must have suffered. The purpose of the Criminal Justice Administration is to bring justice to the accused victim as well as to society. But our legal system is moving in a direction that makes life extremely easy for criminals and too rough, difficult and difficult for citizens.

In India, the criminals are high tech, and we're going behind the criminals. In order to keep the investigation up to date with modern criminals, we should suffer the legal drawbacks of this test. Administration of this test will always provide reasonable grounds to believe that it will provide clues for the investigation process. These methods should therefore be adopted in order to eradicate custodial torture. It should be done as part of the interrogation techniques when the situation demands it.

6.6. APPLICABILITY OF THESE SCIENTIFIC TOOLS IN CRIMINAL JURISPRUDENCE

6.6.1. INDIAN EVIDENCE ACT, 1872

Indian Evidence Act is a uniform legislation for both civil and criminal laws. Though the degree of proof required may be somewhat different in both cases as regards the scientific investigation and its evidentiary value section 45⁵⁵⁸ and 27⁵⁵⁹ of Indian Evidence Act are relevant.

6.6.1.1. SECTION 27

Evidentiary values of these scientific tests are the most crucial and debatable issue even now worldwide. While using these scientific tests especially in narco analysis subject is not in a position to speak, but he can answer specific simple questions. By dosage of medicine it becomes difficult for him to lie and his answers would be restricted to the facts he is already aware of it. The person who is undergoing these tests does not exercise conscious control over this process and often been criticized as against the tenets of Constitution. Indian evidence is silent whether these scientific tests have evidentiary value?

⁵⁵⁸: See Indian Evidence Act, 1872, S. 45, Acts of Parliament, 1872, (India). When the Court has to form an opinion upon a point of foreign law or of science, or art, or as to identity of handwriting, 1 or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, 2 or in questions as to identity of handwriting 1 or finger impressions are relevant facts such person are called expert.

⁵⁵⁹: Indian Evidence Act, 1872, S. 27, Acts of Parliament, 1872, (India). How much of information received from accused may be proved.— Provided that, when any fact is deposed to as discovered in consequence of information received from a person accused of any offence, in the custody of a police officer, so much of such information, whether it amounts to a confession or not, as relates distinctly to the fact thereby discovered, may be proved.

Section 3 of Indian Evidence Act, 1872 defines evidence.⁵⁶⁰ As per the definition it is clear that it includes all oral or documentary evidence. Section 47 A was inserted in Indian Evidence Act in 2000 which give admissibility to scientific evidences⁵⁶¹. After the introduction the above mentioned scientific tool as part of investigation the question raised before the judiciary was whether any statement received by using these scientific test would be admissible under section 27 Indian Evidence Act?

The provisions relating to admissibility of confession by accused in criminal cases are governed by section 24 to 30 of Indian Evidence Act, 1872. Though the definition of confession is not defined under act, it means an admission made at any time by a person charged with a crime stating or suggesting an inference that he committed crime⁵⁶². For a long time Courts in India have adopted this definition of confession as given by Sir James Stephen in Law of evidence. The meaning is very wide so as to include oral or written confessional statement. It contains both exculpatory⁵⁶³ as well as inculpatory statements⁵⁶⁴. In order to be confession it must be a voluntary statement.

⁵⁶⁰. Indian Evidence Act, 1872, S. 3, Acts of Parliament, 1872, (India) "Evidence" means and includes (1) All statements which the Court permits or requires to be made before it by witnesses, in relation to matters of act under inquiry; such statements are called oral evidence; (2) All statements including electronic records produced for the inspection of the Court; Such statements are called documentary evidence.

2. Section 47 A When the court has to form an opinion as to digital signature or any person the opinion of certifying authority which has issued the digital signature certificate is a relevant fact.

⁵⁶². C D FIELDS, LAW OF EVIDENCE 264 (Delhi Law House 2008).

⁵⁶³. Exculpatory evidence is evidence favourable to the defendant in a criminal trial that exonerates or tends to exonerate the defendant of guilt. It is the opposite of inculpatory evidence, which tends to present guilt.

⁵⁶⁴. Inculpatory evidence is evidence that shows, or tends to show, a person's involvement in an act, or evidence that can establish guilt. In criminal law, the prosecution has a duty to provide all evidence to the defense, whether it favors the prosecution's case or the defendant's case.

Section 24 bars confession obtained due to inducement threat or promise⁵⁶⁵. Section 25 of Indian Evidence Act also provides no confession made to a police officer should be proved as against a person accused of any offence⁵⁶⁶. Even when he is in the custody of a police officer that shall not be proved against him⁵⁶⁷. The value of evidence as to the confession depends upon the veracity of the witness to whom it is made and the circumstances in which it has been made. The intention of the Parliament while inserting section 24-26 of the Act was to bar statements from being admissible in evidence if there is any slightest coercion, threat intimidation or any type of fear that this statement was not free or frank. The main argument against the use of these scientific tests are while undergoing this test he has no control over his mind and subject is forced to answer questions against his will and according to section 24 that confession is inadmissible in Court. Similarly the person undergoing this test is

Any evidence that is favourable to the defendant in a criminal trial is considered exculpatory. Likewise, any evidence favourable to the prosecution is inculpatory. Another example of exculpatory evidence would be DNA evidence on a knife in a murder case that links another individual to a crime.

⁵⁶⁵. Indian Evidence Act, 1872, S. 24, Acts of Parliament, 1872, (India). Section 24. Confession caused by inducement, threat or promise, when irrelevant in criminal proceeding.—A confession made by an accused person is irrelevant in a criminal proceeding, if the making of the confession appears to the Court to have been caused by any inducement, threat or promise, having reference to the charge against the accused person, proceeding from a person in authority and sufficient, in the opinion of the Court, to give the accused person grounds, which would appear to him reasonable, for supposing that by making it he would gain any advantage or avoid any evil of a temporal nature in reference to the proceedings against him.

⁵⁶⁶. Indian Evidence Act, 1872, S. 25, Acts of Parliament, 1872, (India). Confession to police officer not to be proved — No confession made to a police officer, shall be proved as against a person accused of any offence.

⁵⁶⁷. Indian Evidence Act, 1872, S. 121, Acts of Parliament, 1872, (India). Section 26 Confession by accused while in custody of police not to be proved against him — No confession made by any person whilst he is in the custody of a police officer, unless it be made in the immediate presence of a Magistrate, shall be proved as against such person.

interrogated by team of experts including the police officers hence it is clearly violation section 25 of Indian Evidence Act.

Generally no statement given to a police officer in the course of investigation is valid but it is subject to exception in case of section 27 of Indian Evidence Act. It states that in the course of investigation if accused person gives any information and in pursuance of such information, any discovery is made, such information and discovery made as a result of information is admissible in court of law even though it may tend to incriminate the person giving the information.⁵⁶⁸ The requirements of section 27 are the accused must be in police custody, he has to makes a statement; his statement must lead to discovery of a fact. If all the above requirements are fulfilled, statement of accused is admissible even if it is incriminating.

Section 27 is based on the principle that if the statement is supported by discovery of fact, the confession may be presumed to be true, and not have been extracted⁵⁶⁹. In state of *State of Bihar v. Raj Kumar Mahto*⁵⁷⁰, it was held that when confessional statement made by the accused is not leading to discovery of weapon used in the crime such statement is inadmissible. The basic idea behind section 27 of Indian Evidence Act is the doctrine of confirmation by subsequent events⁵⁷¹. The doctrine is founded on the principle that, “if any fact is discovered as a search made on the strength of any

⁵⁶⁸. Indian Evidence Act, 1872, S. 27, Acts of Parliament, 1872, (India). How much of information received from accused may be proved.—Provided that, when any fact is deposed to as discovered in consequence of information received from a person accused of any offence, in the custody of a police officer, so much of such information, whether it amounts to a confession or not, as relates distinctly to the fact thereby discovered, may be proved.

⁵⁶⁹. RATHAN LAL AND DEERAJ LAL, LAW OF EVIDENCE 557 (Lexis Nexis 2017).

⁵⁷⁰. State of Bihar v. Raj Kumar Mahto, 2006 CriLJ 4666.

⁵⁷¹. C D FIELDS, LAW OF EVIDENCE 1403 (Delhi Law House 2008).

information obtained from a prisoner such a discovery is guarantee that the information supplied by the prisoner is true". The decision of Privy Council in *Pulikurikottayya v. emperor*⁵⁷² is the most quoted authority for interpretation of section 27.

"The fact discovered envisaged in the section embraces the place from which the object was produced, the knowledge of the accused as to it, but the information given must relate distinctly to that effect. The statement which is admissible under section 27 is the one which is the information leading to discovery".

In *State of Karnataka v. David Rozario*⁵⁷³, it was held that in order to attract section 27 there will be discovery of an object and not discovery of fact envisaged in the section. During the investigation of a crime by the Police, if the accused point out the place where the *corpus delicti* was lying concealed, and in pursuance of such information being given by an accused person discovery is made within the meaning of section 27 of Evidence Act, such information and discovery made as a result of the information may be proved in evidence even though it may tend to incriminate the person giving the information, while in police custody.

The question whether section 27 of Evidence Act is not violative of Article 14 of the Constitution was decided in *State of Uttar Pradesh v. Deomen Upadhyaya*⁵⁷⁴, If an accused person is giving the self-incriminatory information without any threat, which will be admissible in evidence and will not be hit by

⁵⁷² *Pulikurikottayya v. emperor*, AIR 1947 PC 67.

⁵⁷³ *State of Karnataka v. David Rozario*, AIR 2002 SC 3272.

⁵⁷⁴ *State of Uttar Pradesh v. Deomen Upadhyaya*, AIR 960 SC 1125.

provisions of Article 20(3) of the constitution for the reason that there has been no compulsion.

In *Pushpadevi M. Jatia v. M.L. Wadhwan*⁵⁷⁵, Hon'ble Supreme Court observed that if any recovery is made Court can act on the evidence and need not concern the method by which the evidence in question was obtained. If the evidence is admissible and the court is not concerned with how it was obtained.

Section 27 of Indian Evidence Act, 1872 greatly facilitate evidence adduced by scientific tools and any information given or obtained in the process of investigation which is confirmed by the finding of any object or fact is admissible in the court. Recovery made even by undesired means is no bar to its use in court. If scientific techniques are taken into consideration these are not at all illegal or unlawful. Once recovery is made with the help of scientific tools and techniques, prosecution can easily establish the close link between discovery of a material object and its use in the commission of an offence.

The use of narco – analysis, polygraph and brain-mapping would greatly facilitate investigating authorities for recovery of material evidences by use of the statement given by accused with the use of this scientific tool. Hence discovery made in pursuance of scientific tool would be admissible as like any other discovery under section 27 of Indian Evidence Act. The Privy Council held that this section 'which is not artistically worded, provides an exception to the prohibition imposed by the preceding section and this enables certain statement made by a person in police custody to be proved'⁵⁷⁶. This position

⁵⁷⁵ *Pushpadevi M. Jatia v. M.L. Wadhwan*, AIR 1987 SC 1748.

⁵⁷⁶ *Pulukuri Kottayya v. Emperor*, 1947 PC 67.

was also clarified by the Hon'ble Supreme Court in *Selvi v. State of Karnatka*⁵⁷⁷

*In the light of these conclusions, we hold that no individual should be forcibly subjected to any of the techniques (Lie Detector Test, Polygraph Test, Narco-Analysis Test and Brain Mapping Test) in question, whether in the context of investigation in criminal cases or otherwise. Doing so would amount to an unwarranted intrusion into personal liberty. However, we do leave room for the voluntary administration of the impugned techniques in the context of criminal justice provided that certain safeguards are in place. Even when the subject has given consent to undergo any of these tests, the test results by themselves cannot be admitted as evidence because the subject does not exercise conscious control over the responses during the administration of the test. However, any information or material that is subsequently discovered with the help of voluntary administered test results can be admitted in accordance with Section 27 of the Evidence Act, 1872...*⁵⁷⁸

Scientific investigation can make circumstantial evidence more reliable and can disprove biased oral evidence. However introduction of scientific technologies become controversial as it hampers some fundamental legal principles. The legal system should adopt developments that take place in science which are welfare of the people and for the smooth functioning of criminal justice administration. It is true that Constitution as well Indian evidence Act put some restriction on the use of confessional statement by use of threat, inducement or promise but it does not contemplate suppression of truth simply because it is the information given by the accused. Section 27

⁵⁷⁷. *Selvi v. State of Karnatka*, AIR 2010 SC 1974.

⁵⁷⁸. *Selvi v. State of Karnatka*, AIR 2010 SC 1974 at Para 264.

states that that statement made in the custody are admissible to the extent that they can be proved by subsequent discovery of facts. From the analysis of above provisions and case laws it is clear that any recovery made in course of investigation in pursuance of this scientific tool also would be admissible under Indian evidence act as like any other confession. The court can decide its admissibility depending upon number of factors including whether it has given permission to conduct this test. In modern times crimes are done with highly sophisticated means and are leaving no traces. In such a situation we need these types of scientific tools to aid the investigating agencies.

6.6.1.2. SECTION 45

The general rule of evidence is that opinion and belief of third person are irrelevant and inadmissible. The evidence should be based only on facts and not on opinion or inferences. The duty of judge is to decide the cases as per the evidences put before him. But he is not expected to be an expert in all the fields; especially where the subject matters involves technical knowledge. He is not capable of drawing inferences from the facts which are highly technical. In these circumstances he needs help of an expert, who is supposed to have superior knowledge or experience in relation to those subject matter. In such cases rule is relaxed and expert evidence is admitted. Thus opinion evidence is an exception to the general rule of evidence and this exception originated from jury system, which prevailed in common law countries, where it was a common practice that jury called those person as witness who had detailed knowledge of

situations. And the experts were called when the matter involved much more complications and technicalities, which were beyond the knowledge of jury.

Evidence is an important part of adjudication system in India which is adversarial system where the prosecution has to prove the case beyond reasonable doubt. So the basic purpose of evidence is to guide the court to come to the conclusion.

Experts are person who have special skill in knowledge trade or profession one who is by habits of life and business has peculiar skill in forming opinion on subjects in dispute.⁵⁷⁹ An expert in order to competent as a witness, need not have acquired his knowledge professionally. It is sufficient so far as the admissibility of the evidence goes, if he has acquired special experience there in⁵⁸⁰. However the expert must show that he is skilled and has adequate knowledge of the subject⁵⁸¹.

Section 45 of Indian Evidence Act, permit opinion of persons specially skilled upon point of foreign law, science, art or as to the identity of handwriting or finger impression are relevant. Courts in India in plethora of cases held that an expert is someone who has such special knowledge which need not imparted by any university. Even experience in any, trade or profession, which has been acquired by practice observation or careful study which are beyond the range of common man are considered as expert. The value of expert opinion rests on the facts on which it is based and his

⁵⁷⁹ BRYAN A GARNER, BLACK'S LAW DICTIONARY, 578 (St Paul MN West 2009).

⁵⁸⁰ Collector Jabalpur v. A.Y. Johagir Khan, AIR 1971 MP 32.

⁵⁸¹ State of H.P. v. Jai Lal, AIR 1999 SC 3318.

competency for forming a reliable opinion. Hence the importance of expert opinion is decided on the basis of credibility of the expert and the relevant fact supporting the opinion so that its accuracy can be cross checked.

In *Ramesh Chandra agarwal v. Regency Hospital Ltd*⁵⁸², “Mere assertion without mentioning the data or basis is not evidence, even if it comes from an expert. When the expert gives no real data in support of their opinion, the evidence even though admissible, may be excluded from consideration at the correct value”. He should prepare his report with appropriate reasoning and not leave everything to the imagination of the Court. It has to be well authored and convincing.⁵⁸³

The expression science under section 45 has broad meaning. It is not limited to fundamental science. The test which may be applied in determining whether a particular opinion is one of scientific nature, and consequently whether skilled witness may pass their opinion upon it is the subject matter of inquiry are such that inexperience men are unlikely to prove capable of forming correct judgment upon it without the assistance of expert, that is does it so far partake of the character of a science or art as to require a course of previous habit or study in order to obtain a competent knowledge of its nature?⁵⁸⁴ The judiciary has recognized opinion given by doctors, Ballistic expert, chemical examiners, serologist, and DNA expert are experts opinion within the meaning of section 45.

⁵⁸²: *Ramesh Chandra agarwal v. Regency Hospital Ltd*, (2009) 9 SCC 709.

⁵⁸³: *RATHAN LAL AND DEERAJ LAL, LAW OF EVIDENCE* 865 (Lexis Nexis 2017).

⁵⁸⁴: *Mahadeo v. Vyankammabai*, AIR 2948 Nag 287.

With regard to these scientific tool the question is whether these experts are considered as expert within the meaning of section 45 of Indian Evidence act?

Modern scientific methods have revolutionary changes in the field of expert evidence. Though we have no express provision regarding the admissibility of forensic expert under section 45 of Indian Evidence Act Indian judiciary in plethora of cases held that DNA is a perfect science. But with regard to admissibility of these impugned scientific tests it was left undecided by court. If we analyse each test these all are done experts.

In case of polygraph examination several instruments are attached to the subject for measuring and recording the physiological responses. The examiner then read these results, analyses and proceeds to gauge the credibility of subject's answers. Various instruments are used in the course of examination. The falsity or truthfulness is assessed by relying on the records of physiological responses.

*Yelchuri Manohar v. State of A.P*⁵⁸⁵, Andra Pradesh High Court held that lie detector test is admissible under section 293 Cr P C which states that report of certain government Scientific expert to be used as evidence in any inquiry trial or other proceeding. But Hon'ble Supreme Court *Ram singh v. Sonia and another*⁵⁸⁶ held that polygraph is not a subject coming under experts

⁵⁸⁵ *Yelchuri Manohar v. State of A.P*, 2005 Cri L J 4593.

⁵⁸⁶ *Ram Singh v. Sonia and another*, AIR 2007 SC 1218.

evidence as per section 45 as it being a science in mystique and could be used as an aid to investigation and not as evidence.

Brain mapping is a process of detecting whether an individual is familiar with certain information. As like other test it also requires effective collaboration between the investigator and the examiner, most importantly for distinguishing the stimuli which are called probe. By examining the records of these waves the examiner can make inferences about the individuals familiarity with the information related to the crime. In the case of narco analysis test also it is conducted by team of expert including the chemical analysers.

In *Bal Krishna Das v. Radha Devi*⁵⁸⁷ an expert was defined as a person who by his training and experience has acquired the ability to express an opinion. The purpose of an expert opinion is primarily to assist the court in arriving at a final conclusion. The importance of scientific test has expressed by Supreme Court in *Gajraj v. State (NCT) of Delhi*⁵⁸⁸, where it has been held that accused can be convicted on the basis of conclusive scientific evidence. This scientific evidence may be of any kind, be that mobiles phones, internet, DNA samples, etc. In everything technology is involved, so these scientific techniques should be incorporated in criminal justice system too.

With the rapid increase in activities of modern state more and more new crimes are coming up like multi Crore financial fraud, terrorism, cyber-crimes, political crime, etc apart from increase in conventional crimes like

⁵⁸⁷ *Bal Krishna Das v. Radha Devi*, AIR 1989 All 133.

⁵⁸⁸ *Gajraj v. State (NCT) of Delhi*, (2011) 10 SCC 675.

murder, rape, violence against women and children, cheating etc. These tests are quite helpful to investigative agencies to find out the real culprit.

In *Jaga Arjan Dangar v. State of Gujarat*,⁵⁸⁹ it was held that the field of criminology has expanded rapidly during the last few years and the demand for supplemental methods of detecting deception and improving the efficiency of interrogation have increased concomitantly.

From the analysis of the above it is clear that person who has skilled in forming an opinion or as acquired adequate knowledge on the subject is an expert. It is not necessary that he must have acquired professional knowledge. Hence they are all experts in these fields who acquire special skill and experience. The court has to concern with situations when investigators seek reliance on these tests to detect deception or to verify the truth. Hence the expert in relation to the brain mapping, polygraph and narco analysis tests should be considered as expert o under section 45 of Indian Evidence Act.

6.6.2. THE CODE OF CRIMINAL PROCEDURE, 1973

Investigating officers are the masters of investigation and no agency can interfere in the matters of investigation except under certain circumstances⁵⁹⁰. As part of investigation investigating agencies can collect evidence which has been permitted under section 157⁵⁹¹.

⁵⁸⁹. *Jaga Arjan Dangar v. State of Gujarat*, Special Criminal Application No 6403/2018 of Gujarat High Court.

⁵⁹⁰. The Code of Criminal Procedure, 1973, S. 156(3), Acts of Parliament, 1973 (India).

⁵⁹¹. The Code of Criminal Procedure, 1973, S. 157, Acts of Parliament, 1973 (India). Procedure for investigation preliminary inquiry- If, from information received or otherwise,

The investigating agencies are facing crucial problem when they use these scientific techniques as part of criminal investigation. For effective investigation provisions for medical examination has been incorporated under Code of criminal Procedure by sections 53⁵⁹² and 54⁵⁹³ which says that, if there are reasonable ground for believing that examination of arrested person will afford evidence as to the commission of crime then medical examination can be conducted by registered medical practitioner. The scope of section 53 Cr P C was expanded in 2005 by the Code of criminal procedure (Amendment) Act, 2005 to include the examination of blood, blood stains, semen, swabs in case of sexual offence, sputum and sweat, hair samples and finger nail clippings, by the use of modern and scientific technique including DNA profiling and such other tests which the registered medical practitioner thinks necessary in a particular case.

2005 amendment is a protective and positive recognition of scientific test. It empowers the investigating agencies to adopt efficient scientific methods for investigation⁵⁹⁴. Section 53 contemplates the use of 'force as is reasonably necessary for conducting a medical examination. This means that

an officer in charge of a police station has reason to suspect the commission of an offence which he is empowered under section 156 to investigate, he shall forthwith send a report of the same to a Magistrate empowered to take cognizance of such offence upon a police report and shall proceed in person, or shall depute one of his subordinate officers not being below such rank as the State Government may, by general or special order, prescribe in this behalf, to proceed, to the spot, to investigate the facts and circumstances of the case, and, if necessary, to take measures for the discovery and arrest of the offender;

⁵⁹². The Code of Criminal Procedure, 1973, S. 53, Acts of Parliament, 1973 (India). Examination of accused by medical practitioner at the request of police officer.

⁵⁹³. The Code of Criminal Procedure, 1973, S. 54, Acts of Parliament, 1973 (India). Examination of accused by medical practitioner at the request of arrested person.

⁵⁹⁴. The Code of Criminal Procedure, 1973, S. 53 A, Acts of Parliament, 1973 (India).

once a court has directed the medical examination of a particular person, it is within the powers of the investigating agencies and the examiners to resort to a reasonable degree of physical force for conducting the same. By this amendment the legislature intended to include all modern and scientific methods for conducting investigation. Polygraph and brain mapping are non-invasive method will detect deception without causing physical or mental injury to the subject⁵⁹⁵.

Conducting these tests on accused is to be considered as process of collection of such evidence by the Investigating agencies as these are scientific methods in furtherance of the investigation. It is valuable technique which would help the Investigating agency to further investigate the crime when the Investigating Agency finds itself clueless and there are no other ways to proceed with the investigation. As there is no specific procedure under the Code of Criminal procedure for doing these scientific test its legality is always questioned before judiciary.

In *Anil Anantrao Lokhande v. State of Maharashtra*⁵⁹⁶, Hon'ble Court held that,

The provision set out in Section 53 of the Code is intended to assist the investigation of a crime on a scientific basis so as to enable the collection of evidence to prove the person's guilt or innocence. Court, also held that, in our opinion, modern community living required such

⁵⁹⁵ DR. B. Uma dathan, *Medico Legal Aspects of Narco Analysis*, II NUALSLJ 21(2008).

⁵⁹⁶ *Anil Anantrao Lokhande v. State of Maharashtra*, 1981 Cri L J 125.

modern scientific methods of detecting crime, so as not to leave the public unprotected.

In *State of M H v. Indian Hotel and restaurant Association*⁵⁹⁷, Hon'ble Supreme Court held that law must be interpreted keeping in mind the problems of general public.

One of the major problems faced by Indian criminal justice system is low rate of conviction due to absence of proof. Throughout the world law enforcement agencies are witnessing tremendous changes with the progress of science and technology. Hence the contemporary society needs enormous changes in order to protect the general public.

Justice Krishna Iyer in *Nandini sathpathy*⁵⁹⁸ remarked that "Courts self-incriminate themselves if they keep the gates partly open for culprit to flee of justice under the guise of interpretative enlargement of golden rule of criminal jurisprudence". Hence the investigating agency has to use modern methods for conducting investigating. .

Supreme Court in *Sheikh Gulfan v. Sanat Kumar*⁵⁹⁹, observed that;

"Normally, the words used in the statute have to be constructed in their ordinary meaning, but in many cases the judicial approach finds that the simple means of adopting the ordinary meaning of the word does not meet the ends of a fair and reasonable construction. Exclusive dependence on the bare dictionary meaning of words may not necessarily contribute to the proper construction of the statutory

⁵⁹⁷. *State of M H v. Indian Hotel and restaurant Association*, (2013) 8 SCC 519.

⁵⁹⁸. *Nandini Satpathi v. P L Dani*, 1978 AIR 1025; 1978 SCC (2) 424.

⁵⁹⁹. *Sheikh Gulfan v. Sanat Kumar*, 1965 AIR 1839.

provision in which words occur. It is often enough that, when interpreting a statutory provision, it is necessary to take into account the subject-matter of the statute and the object to be achieved. That is why, in deciding the true scope and effect of the relevant words in any statutory provision, the context in which the words are used, the subject-matter of the statute in which the provision is included and the policy underpinning the statute assume relevance and become material”

In *Rithesh Sinha v. State of UP*⁶⁰⁰, the court addressed the question whether in the absence of any specific provision in the Cr P C would a Court be competent to authorize the Investigating Agency to record the voice sample of a person accused of an offence. Court observed that;

the judicial function is not to legislate but in a situation where the call of justice and that too of a large number who are not parties to the lis before the Court, demands expression of an opinion on a silent aspect of the Statute, such void must be filled up not only on the principle of ejusdem generis but on the principle of imminent necessity with a call to the Legislature to act promptly in the matter..

Hence taking voice print for the purpose of investigation is not violative of Article 20(3) of the constitution and even in the absence of specific provision investigating authorities can use this test.

The judicial function is not to legislate, but in a situation in which the call for justice and the fact that too many of those who are not parties to the list

⁶⁰⁰ *Rithesh Sinha v. State of UP*, 2019 SCC OnLine SC 956.

before the Court require the expression of an opinion on a silent aspect of the statute, that void must be filled not only by the principle of *eiusdem generis*, but also by the principle of imminent necessity, with a call to the Legislature to act promptly.

Finally, the court held that until an explicit provision in the Code of Criminal Procedure has been inserted by Parliament, a judicial magistrate must be given the power to order a person to give a sample of his or her voice for the purpose of investigating a crime.

In the light of above decisions it is clear that the purpose of interpretation is to ascertain what the legislature intended. If literal meaning is not clear it should be interpreted in such a meaning which would give maximum benefit to society. Conducting investigation is the statutory right of police. They could not be prevented on the ground that these scientific tests are not procedure established by law. Intention of parliament while inserting section 53A into Code of Criminal Procedure is to include modern scientific methods for conducting investigation. Hence section 53 Cr P C shall be interpreted in such a way to include all scientific methods including these scientific methods as part of investigation.

6.7. JUDICIARY AND THE SCOPE OF THESE SCIENTIFIC TOOLS OF INVESTIGATION

The constitutionality and evidentiary value of scientific evidences had been a serious issue in India till the decision of Supreme Court in *Selvi v. State of Karnataka*⁶⁰¹.

The main issue involved was whether narco analysis, brain mapping, and polygraph could be used as constitutionally valid method for gathering evidence. This issue has received considerable attention since it involves tensions between the desirability of efficient investigation and the preservation of individual liberties. In this case contention of the petitioner was that Parliament was well aware of impugned technique at the time of Cr P C amendment 2005 and not included these techniques in the amended explanation to section 53, section 53A, and 54 Cr P C. He was also argued that blood, semen, sputum, sweat hair and fingernail clippings can be really characterized as physical evidence. Section 53 and 54 Cr P C includes examination of physical evidence and not that of testimonial acts.

The counsel for state contended that phrase ‘modern and scientific techniques including DNA profiling and such other tests’ should be liberally construed to include the impugned techniques⁶⁰². It was argued that even though the narco analysis technique, polygraph examination and brain mapping test have not been expressly stated as, they could be read by examining the

⁶⁰¹. *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

⁶⁰². *Selvi v. State of Karnataka*, (2010) 7 SCC 263 at Para 147.

legislative intent. It was also argued that in any case, statutory provisions can be liberally construed in light of scientific advancements. He had also submitted that with the use of these impugned techniques, the intention on part of the investigators is to extract information and not to inflict any pain or suffering. The actual administration of the narco analysis technique, polygraph examination or brain mapping does not involve a condemnable degree of 'physical pain or suffering' though some physical force may be used which is permitted under section 53 of Cr P C.

If the compulsory administration of the impugned techniques amounts to intrusion into personal liberty, it is justifiable since there is a compelling public interest to eliciting information. Honourable Supreme Court reached the conclusion that, in our considered opinion, the compulsory administration of the impugned techniques violates the 'right against self- incrimination' and the use of Narco-analysis, brain-mapping and polygraph tests on accused, suspects and witnesses without their consent as unconstitutional and violation of the 'right to privacy

"We hold that no individual should be forcibly subjected to any of the techniques in question, whether in the context of investigation in criminal cases or otherwise. Doing so would amount to an unwarranted intrusion into personal liberty".

Court observed that the impugned techniques cannot be read into the statutory provisions which enable medical examination during investigation in criminal cases, i.e. the Explanation to Sections 53, 53-A and 54 of the Code of

Criminal Procedure, 1973. Such an expansive interpretation is not feasible in light of the rule of ‘ejusdem generis’. Court has taken the view that, “compulsory administration of any of these techniques is an unjustified intrusion into the mental privacy of an individual. It would also amount to cruel, inhuman or degrading treatment with regard to the language of evolving international human rights norms”.

Court also reminded ‘Guidelines for the Administration of Polygraph Test (Lie Detector Test) on an Accused’ which was published by the National Human Rights Commission in the year 2000. These guidelines should be strictly adhered to and similar safeguards should be adopted for conducting the ‘Narco analysis technique’ and the ‘Brain Electrical Activation Profile’ test⁶⁰³. For the first time in this case Court has given Guidelines for the use of these techniques in investigation level⁶⁰⁴.

The text of these guidelines has been reproduced below:

- i. No Lie Detector Tests should be administered except on the basis of consent of the accused. An option should be given to the accused whether he wishes to avail such test.
- ii. If the accused volunteers for a Lie Detector Test, he should be given access to a lawyer and the physical, emotional and legal implication of such a test should be explained to him by the police and his lawyer.

⁶⁰³. Selvi v. State of Karnataka, (2010) 7 SCC 263 at Para 147 at para 223.

⁶⁰⁴. Prarthana Banerjee, *Violation Of Human Rights Through Scientific Techniques* CXI CriLJ 106-129 (2013).

- iii. The consent should be recorded before a Judicial Magistrate.
- iv. During the hearing before the Magistrate, the person alleged to have agreed should be duly represented by a lawyer.
- v. At the hearing, the person in question should also be told in clear terms that the statement that is made shall not be a 'confessional' statement to the Magistrate but will have the status of a statement made to the police.
- vi. The Magistrate shall consider all factors relating to the detention including the length of detention and the nature of the interrogation.
- vii. The actual recording of the Lie Detector Test shall be done by an independent agency (such as a hospital) and conducted in the presence of a lawyer.
- viii. A full medical and factual narration of the manner of the information received must be taken on record.

6.7.1. ANALYSIS OF SELVI v. STATE OF KARNATAKA

In *Selvi v. State of Karnataka*⁶⁰⁵ court affirmed that these test are violative of Article 20(3) of the constitution as when these tests are administered he loses his senses and answers questions which are incriminating himself. It was also held that Article 21 cannot be suspended during emergency. Hence argument that it is done in compelling public interest is baseless.

Though Court has taken the view that is violative of fundamental right

⁶⁰⁵ Selvi v. State of Karnataka, (2010) 7 SCC 263.

but certainly this type of scientific test will provide some evidence or clue to the investigating agencies which may corroborate with other oral testimonies. The result of brain mapping and lie-detector test are not statement but it only discloses existence of knowledge about crime in brain. The statement given in Narco- analysis test however cannot be termed as involuntary. These scientific tests are done after acquiring consent of the person hence it is not self-incriminatory. Before doing this test investigating agency has to seek permission of the magistrate and consent of the person. Use of this impugned techniques has particular relevance in the context of terrorism related cases, financial fraud and heinous crimes. The fundamental rights are not absolute and have to be kept in conformity with the changing conditions. By knowing its necessity courts are giving permission to Investigating agencies for conducting these scientific even after selvi's decision.

In this case Court has clarified distinction between physical evidence and testimonial evidence, and the statement collected through narco Analysis is considered as testimonial evidence and would not come within the meaning of section 53. In DNA profiling bodily substances are extracting from the body of a person but in these scientific tests information are extracting by injecting medicines or some other ways. Hence ejusdem generis rule has no application.

If these tests are not included under section 53 A because of the ejusdem generis application by taking into account necessity of investigation, these technique should be made as part of investigation especially in case of habitual

and hardened criminals and financial fraud terrorism cases etc. Hence, a separate amendment should be brought out in this section.

In *Gopakumar v. The State Police Chief*⁶⁰⁶, the main issue raised was whether the investigating agency has to file charge sheet without doing narco analysis test which has been permitted by the magistrate and consented by the petitioner? Prosecution contended that in the course of the investigation, the Investigating Officer might have felt that if the petitioner is subjected to polygraph, brain mapping and narco analysis tests, it would be better for the prosecution and it might be on account of the said belief that the investigating officer has preferred this test. But no evidence what so ever could be collected from the polygraph and brain mapping tests to which the petitioner was subjected to and that the final report is, therefore, filled without placing any reliance on the results of the said tests. Court observed that where the prosecution is confident that the guilt of accused could be established beyond reasonable doubt on the basis of evidence collected by it, the accused cannot maintain the stand that he has agreed and consented to undergo narco analysis test. It is the prerogative and wisdom of the prosecution as to the materials to be collected and to be placed before the Court to prove the guilt of the accused. Court also held that investigation is sole authority of executive arm of the state and accused has no voice how to conduct the investigation. Hence the investigating agency can file charge sheet without

⁶⁰⁶. *Gopakumar v. The State Police Chief*, WP(C) No 7239/2019 of High Court, Kerala decided on Jan. 29, 2020.

conducting the narco analysis test which had been permitted by the Court and consented by the petitioner.

In the case of *Dr Mallikarjun v. The State Of Karnataka*⁶⁰⁷, entire proceedings for subjecting the accused for doing the impugned was held to be vitiated as the investigating agency had not complied with the guidelines of National Human Right Commission as laid down by Hon'ble Supreme Court in *Selvi v. State of Karnataka*.

Narco analysis test played a pivotal role in *Central Bureau of Investigation v. Father Thomas Kottoor, and another*⁶⁰⁸. The facts in brief are; Abaya 21 year old nun, was found dead on 27th March 1992, and her body was recovered from a well at St Pius xth Convent, Kottayam, where she was lived then. This case, though initially ruled out as a suicide by the police. It was only when the investigation was taken over by the CBI that a lot of facts came to light. The case took almost 28 years to decide. At the time when the murder happened in the year 1992, the investigation methodologies and technology hadn't developed enough to be able to collect DNA evidence. The investigation was heavily relied on circumstantial evidences. The case got even more complicated when many witnesses turned hostile. As the case involved people with a lot of power, the evidence was tampered with, making the case very difficult to prove. It was when even after so many years of investigation, the

⁶⁰⁷. *Dr Mallikarjun v. The State of Karnataka*, 2019 (1) SCC (Cri) 801.

⁶⁰⁸. *Central Bureau of Investigation v. Father Thomas Kottoor, and another*, C.P.No.2/2009 of CJM, Ernakulam

narco test was allowed to be used them which turned the case around, and helped the investigation to discover the truth in the case.

After undergoing this test Sister Sefy questioned before the Kerala High Court, the admissibility of this test under section 27 of Indian Evidence Act⁶⁰⁹. She contended that when the subject has given consent to undergo any of these tests, the test results by themselves cannot be admitted as evidence, because the subject does not exercise conscious control over the responses during the administration of the test. However, any information or material that is subsequently discovered with the help of voluntary administered test results can be admitted in accordance with Section 27 of the Evidence Act, 1872". The sheet anchor of the case of the petitioners is that even if it is assumed that the narco analysis tests were undergone by the petitioners voluntarily, the respondent prosecution agency will not be able to satisfy the above said cardinal requirements imposed by the Apex Court in paragraph 264 of the Selvi's case. While answer to this contention, the learned Standing Counsel for the respondent CBI raised the following points;

- a) From the Narco results, CBI has discovered that A-1 to A-3 are responsible for the brutal murder of the deceased Sister Abhaya.
- b) Narco gave the factum of involvement of weapon and its nature for causing the death of the deceased notwithstanding that the weapons could not be recovered. In this case, the previous Investigating Agency and the accused persons had destroyed the

⁶⁰⁹ Sr.Sephy v. Central Bureau of Investigation, 2020 (1) KLT 763.

weapons; MO's and documents to hush up the criminality involved in it.

- c) Narco threw lights to show that the accused persons had destroyed the evidence which also showed that Crime Branch officials had made the evidence tampered with.
- d) The most crucial fact which has come out through Narco was that the petitioner A-1 was a permanent visitor of the Convent and he was present in the Convent on the faithful day. Also it established that A-1 to A-3 were resorted to immoral activities in the Convent and on the faithful day also both A-1 & A-2 along with A-3 were involved in the immoral activities which ultimately led to the murder of Sister Abhaya in this case.
- e) The revelation made by the accused in Narco corroborates the scientific evidence of experts that Sister Abhaya was succumbed to death due to the impact of blunt weapon on her head which disproves that Sister Abhaya committed suicide as claimed by the accused persons.

The use of this type of scientific tool in this case helped the prosecution to convince the guilt of accused that used power and other methods to jeopardize the case and evade justice. However it was these newer developments in the field of investigation that helped to uncover this case. This case is a good example of how technology can help to advance the process of

investigation. In this case CBI Court awarded life imprisonment and fine to both.

Though Narco Analysis Polygraph tests and brain mapping tests had great controversy on account of self-incrimination and in some cases even having a detrimental effect on the health of persons taking such tests, these modern technologies have come to the aid of investigators when all else has failed. These test can be used sparingly in cases where the need arises, however, more restrictions on the use of such tests will only be detrimental to the effectiveness of the criminal Justice system and the process of investigation.

6.8. CONCLUSION

A criminal justice system which is well acquainted with the technological advancement of the world is the need of hour. These technologies can be used in the prevention of crime and bring the criminals in the arena of law. At the same time the technology should not lead towards violation of rights of citizens. Though these technologies have become need of investigating agencies but due to some constitutional and legal issues there are debatable issues in this field. After the decision of Selvi it can be shown that the use of narco analysis is reduced but the decisions like Ajmal Kazab and Abhaya murder case show that it can be used as an interrogative tool in Terrorism, financial fraud, serial killing and heinous crimes after complying the strict guidelines of National Human Right commission and guidelines of Supreme Court. These tests will be helpful for saving innocent

persons and eliminate the use of third degree methods in interrogation.

Brian mapping technique determines guilty knowledge stored in the brain. In polygraph test polygraph examiner carefully analyses the responses and in case of narco analysis investigating agencies can collect answers to certain specific questions. This is the reason the apex court never absolutely denied the use of these tests. Indian Judiciary finally permitted the conditional use of these tests for extracting truth. As there is no express provision its legality is still questioned before the judiciary. Hence an amendment is needed in our Constitution as well as in our procedural laws in order to make these scientific tests as part of criminal investigation. The legal system should imbibe developments and advances that have been taken place in a society so long as they do not violate legal principles and should be beneficial to society.

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CHAPTER VII

LEGALITY OF SCIENTIFIC INVESTIGATION IN COMMON LAW COUNTRIES WITH SPECIAL REFERENCE TO USA AND UK

If criminal evidences are not objectively tested, analysed and interpreted by adequate scientific methods, the search for truth will potentially be compromised, if not defeated.

- U.S. Congress resolution, 2009

7.1. INTRODUCTION

There is a commonality in the judicial process of the common law jurisdictions. There are common strands of bonds in the substantive and adjective sectors. The bond is firm up by the metaphysical and transcendental forces emitted by the Jurisprudence of all jurisdictions. Administration of criminal justice would be fertile where collective thinking has evolved common perspectives. In this context investigation is a core factor. The general law of investigation, techniques, tools, applications, procedures and all other auxiliary and ancillary factors coningle. The Rule of Law has always been hailed by the judicial system around the world, from the beginning. And since the beginning of society, human being had a moral code of conduct, which defined the minimum right that one person has inherited to sustain a dignified human life. These rights are inherently available to all

human beings and are not granted by any state government. These principles are universally applicable and have existed in some form or other across all cultures, and as time passed the human rights become more and more important for sustaining a peaceful and just society.

The desire to develop a model for the validation of scientific discoveries and methodologies has been a constant struggle since the very early period of modern scientific thinking⁶¹⁰. In today's world it becomes inevitable to use modern technology as a means of collecting scientific evidence to prove the case. However, a lot of questions have been raised regarding the nature of scientific evidences and the methods required for their collection as it will violate right to privacy. Many countries have been able to strike a balance between the use of these methods for evidence and the right to privacy of its people. The process is heavily monitored, to ensure that the methods used for investigation are reliable, and that proper procedure has been followed in collecting them. But though these drawbacks are being put forward, the criminal justice systems are left with no choice but to adapt with the changing times and address the need of the hour, because if the crime fighting systems are not efficient, they will easily out run by the criminals, who are quickly adapting to and taking benefits of new technology.

⁶¹⁰. TERRENCE F. KIELY, FORENSIC EVIDENCE: SCIENCE AND THE CRIMINAL LAW 1 (CRC Press, London 2000).

7.2. LEGALITY OF SCIENTIFIC INVESTIGATION IN UNITED STATES OF AMERICA

In the United States, both the States and Federal government have authority to prosecute criminal offences. Each state has its own criminal statutes, Court systems, police agencies and prosecutors. The basis of criminal procedure is United States constitution, Bill of Rights and subsequent amendments.

Criminal proceedings in US district Court, Courts of Appeal and Supreme Court are governed by Federal Rules of Criminal procedure⁶¹¹. The rules of criminal procedure are arise out of the fourth⁶¹², fifth⁶¹³, sixth⁶¹⁴, eighth⁶¹⁵ and fourteenth Amendments⁶¹⁶ to the United States Constitution, which includes laws of arrest, search, seizure, search warrants electronic surveillance, rules of evidence, admission, confession⁶¹⁷.

⁶¹¹. 150 years of the federal judiciary, there was no uniform federal criminal procedure. the first Federal Rules of Criminal Procedure were subsequently adopted by order of the Court on December 26, 1944,

⁶¹². The Fourth Amendment (Amendment IV) to the United States Constitution prohibits unreasonable searches and seizures and requires any search warrant to be judicially sanctioned and supported by probable cause. It is part of the Bill of Rights.

⁶¹³. The Fifth Amendment is an amendment to the Constitution that guarantees U.S. citizens specific rights, including not having to testify against yourself if you are accused of committing a crime. It is part of the first ten amendments to the Constitution called the Bill of Rights.

⁶¹⁴. The Sixth Amendment guarantees the rights of criminal defendants, including the right to a public trial without unnecessary delay, the right to a lawyer, the right to an impartial jury, and the right to know who your accusers are and the nature of the charges and evidence against you.

⁶¹⁵. The Eighth Amendment to the United States Constitution states: "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted".

⁶¹⁶. Fourteenth Amendment, amendment (1868) to the Constitution of the United States that granted citizenship and equal civil and legal rights to African Americans and slaves who had been emancipated after the American Civil War, including them under the umbrella phrase "all persons born or naturalized in the United States".

⁶¹⁷. MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 21 (CRC Press 2013).

Main Investigative agency in USA is the Federal Bureau of investigation⁶¹⁸. Federal Structure of the USA has resulted in different agencies for investigation at the federal and state level. In USA investigation is conducted by Department of justice. Title 28, US code, section 533 authorizes United States General to appoint officials for investigation for all matters falling within the jurisdiction of the State or department of justice. In USA District attorney plays a vital role in the investigation.

Criminal investigations are divided into preliminary and follow up investigation. Preliminary investigation provides foundation for the criminal case. It is aimed at identifying the offender, determining what occurred, locating witness if available, and obtaining physical evidence. Investigator accumulate specific information pertaining to the crime, searches for evidence, question suspects, and witness, record all statements identifies , examines, collect, and process physical evidence, photographs, etc⁶¹⁹. Copy of investigative report is given to the victim, and he or she can provide additional information if any. The quality of this report assumes whether crime will be solved.

Follow up investigation indicate the existence of sufficient solvability factors or leads for a detective to continue. It extends beyond the crime scene and into the community. The investigator thoroughly reviews the preliminary investigation. In USA crime analysis unit correlate information, analyses it, and

⁶¹⁸. It was established in 1908 as the Bureau of investigation. It's name was changed to Federal Bureau of investigation in 1935.

⁶¹⁹ MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 21 (CRC Press 2013).

gives it back to the investigator⁶²⁰. Crime scene coordinators have overall responsibility for investigation⁶²¹. Computers have prominent role in criminal investigation in USA. In 1965 the first computerized information centre for missing persons was established in USA. Investigators investigate crime and collect evidence and help prosecutors to understand the details of the case. Police officers should have probable cause before they search a person's home, their clothing, car or other property as per the 4th amendment of US Constitution⁶²².

Evidence obtained in violation of the rules of criminal procedure are deemed by U.S. Supreme court to be unlawfully obtained evidence. Some important decisions in this area are *Dred Scott v. Sandford*⁶²³ in which Chief Justice Roger Toney wrote that a 'Black man, even born free could not claim right of citizenship even if they born free'. The 14th amendment of U.S. Constitution 1866 was clearly the impact of U S Supreme Court decision on *Dred Scott v. Sand ford*.

The 5th amendment of U.S. Constitution also limit the use of brutal torture to extract confession⁶²⁴. In *Ashcraft v. Tennessee*⁶²⁵ suspect had interrogated 36 hours under electric light was held to be inadmissible.

⁶²⁰. MICHAEL J. PALMIOTTO, CRIMINAL INVESTIGATION 19 (CRC Press 2013).

⁶²¹. CHARLES R. SWANSON, JR, NEIL C. CHAMELIN, LEONARD TERRITO, CRIMINAL INVESTIGATION 13 (Goodyear Publishing Company)

⁶²². 4th amendments of US Constitution protect, people from unreasonable searches and seizures by the government. This is, however, is not a guarantee against all searches and seizures, but only those that are deemed unreasonable under the law.

⁶²³. *Dred Scott v. Sandford*, 60 U.S. 393 (1856)

⁶²⁴. According to 5th amendment to U.S. constitution, No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice

In *Miranda v. Arizona*⁶²⁶, U.S. Supreme court overturned Miranda's conviction for kidnapping and rape cases because he had not been informed his legal right to ask for attorney or remain silent which has been guaranteed by the 5th amendment of U.S. Constitution⁶²⁷. In this case Justice Warren opined that, when the Government seek to punish an individual it must produce the evidence against him by its own independent labors, rather than by the expedient of compelling it from accused's mouth.

Even though U S Constitution does not explicitly mention about the right to privacy, it was recognized as a constitutionally protected right in 1965. The first case which recognized rights to privacy was *Griswold v. Connecticut*⁶²⁸. In this case Justice Douglas noted that right of privacy is derived from various distinct elements which has been derived from first, Third, Fourth, Fifth, and Ninth amendment of U.S. Constitution.

The Fourth Amendment to U.S. Constitution protects against unreasonable searches and seizures. Intention of Fourth Amendment is to protect personal privacy and dignity against unwarranted governmental intrusion⁶²⁹. In *United State v. Harris*⁶³⁰, it has been held that reasonableness of a particular search or seizure is to be determined by balancing the need of

put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

¹⁷. *Ashcraft v. Tennessee*, 322 U.S. 143 (1944)

⁶²⁶. *Miranda v. Arizona*, 384 U.S. 436 (1966)

⁶²⁷. The impact of Miranda was someone to be informed of his or her Constitutional right prior to interrogation and educate the persons relevant constitutional right

⁶²⁸. *Griswold v. Connecticut*, 381 U.S. 479 (1965).

⁶²⁹. ABHIJEET SHARMA, GUIDE TO DNA TESTS IN PATERNITY DETERMINATION & CRIMINAL INVESTIGATION 156 (Wadhwa and Company 2007)

⁶³⁰. *United State v. Harris*, 403 U.S. 573 (1971).

investigating agencies for evidence with the extent of invasion of a suspect's personal privacy. The test of reasonableness is not a mechanical application and the Court must consider the scope of the particular intrusion, the manner in which it is conducted, the justification for initiating it and the place in which it is conducted⁶³¹.

Mandatory blood testing of all prisoners to detect the presence of HIV has been justified by the U.S. Government in controlling AIDS in prison. Swabbing the mouth of an individual with a soft pad to collect saliva or skin cells to collect DNA sample is deemed to be a search under 4th amendment to U.S. Constitution. In 20th century as science progressed, the legal system attempt to develop coherent test for admissibility of scientific evidences.⁶³² United States of America, has been successful in not only using Scientific Evidence at the stage of investigation but also, incorporating it in the court room to build and decide cases.

7.2.1. ADMISSIBILITY OF SCIENTIFIC EVIDENCE

Earlier scientific evidence had not been accepted by the courts. Before 1923 expert testimony was admitted at face value. The only question the court considered then was whether a particular expert was qualified or not. But after the landmark judgment in *Fyre v. United States*⁶³³, Scientific evidences has got serious attention. In the United States there were two main tests for

⁶³¹: Bell v. Wolfish, 441 U.S. 520 (1979)

⁶³²: DR. LILY SRIVASTHAVA LAW RELATING TO SCIENCE AND TECHNOLOGY_263 (Thomson Reuters 2016).

⁶³³: Fyre v. United States, 293 F 101 3 DC Cir.1923.

admissibility of scientific evidences. First is the Frye test enunciated from *Frye v. United States*. The other test was the helpfulness standard found in the Federal Rules of Evidence. The Frye test played an important role in this context.

In *Frye v. United States*⁶³⁴, States Federal Court of Columbia Circuit Court refused to admit the systolic blood pressure deception test, (an earlier version of the now lie detector test) in murder case. Lie detector tests were new at that time, and were based on the theory that “increases in systolic blood pressure result from a suspect’s fear of being detected”. The main issue was whether this new technology was generally accepted in the scientific community, or whether scientific studies had been completed to support that changes in blood pressure accurately demonstrate, whether the test subject is giving honest answers. Supreme Court held that the lie detector technology was not generally accepted, and that the district court had properly excluded this evidence from the earlier case. Court also held that in admitting expert testimony deduced from a well-recognised scientific principle or discovery, the evidential force of the principle must be recognised in the scientific community as a reliable source of drawing conclusion”.

Frye Standard was proving difficult when it came to adopt new technologies in the system. Though the decision was only binding on the D.C Circuit, almost all jurisdictions in the United States approved and applied it. Frye Standard ignored the reliability of particular piece of evidence and

⁶³⁴ Frye v. United States, 293 F 101 3 DC Cir.1923.

concentrated in the general reliability of the scientific test as a whole. The new “Frye Standard”, one of the first such guidelines to be used to monitor the use of scientific technologies in a court of law, stated that the scientific principle from which testimony was based must be sufficiently established to have gained general acceptance in the particular field in which it belonged in order to test the testimony to be admissible in court.

The new standard remained in use for fifty years until the Federal Rules of Evidence adopted in 1976 superseded it. In 1975 Congress enacted Federal Rules of Evidence⁶³⁵ in which Rule 702 to 706 deals with expert evidence⁶³⁶ and Rule 401 and 402 deals with relevancy of evidence.

Federal Rules of Evidence which deal with admissibility of scientific evidence are clearly descriptive, and when determining the admissibility of scientific evidence, they stress helpfulness, reliability, and relevance (not general acceptance). In particular, Rule 702 embodies a more flexible general relevance test for admissibility of opinion testimony by expert witnesses not allowed by the Frye test.

This law in essence, reformed the Frye standard, relying more on the effectiveness of the methodology used than on the general acceptance. These changes

⁶³⁵. The Federal Rules of Evidence are a set of rules which governs the introduction of evidence at civil and criminal trials in United States federal trial courts. The current rules were initially passed by Congress in 1975, after several years of drafting by the Supreme Court.

⁶³⁶. Rule 702 deals with Testimony by Experts, Rule 703 deals with Bases of Opinion Testimony by Experts, rule 704 deals with Opinion on Ultimate Issue, Rule 705 deals with Disclosure of Facts or Data Underlying Expert Opinion and rule 706 deals with Court Appointed Experts.

paved the way to adopt latest technology in criminal investigation and make it a norm rather than exception in subsequent cases.

The United States Court of Appeals *U.S v. Downing*⁶³⁷ in 1985, established the standard that when there was any question regarding the reliability of evidence, it was important for the court to conduct an “evidentiary relevance hearing”, the pre-trial hearing used to efficiently determine the reliability of the evidence. In this case, the trial court refused to allow the defence’s request of a psychologist’s testimony and went by the eyewitness testimony to convict Downing of mail fraud and wire fraud pointing the psychologist’s testimony did not meet the “helpfulness standard” of Rule 702. The case was remanded back to the district court ruling as exclusion of psychologist’s testimony as wrong, and directed the district court to conduct an evidentiary hearing on the admissibility of expert testimony. It further directed the district court to grant a new trial if it found that the expert testimony should have been included or reinstate the guilty verdict if it found otherwise. The district court however upheld the original guilty verdict refusing to admit the psychologist’s testimony on the grounds that the psychologist’s testimony did not carry with it a sufficient degree of reliability to aid the jury in reaching an accurate resolution; admitting the evidence would overwhelm, confuse or mislead the jury; and the expert testimony would not be of value because the eyewitness encounters in this case were numerous.

⁶³⁷ U.S v. Downing, 784 (e.d. Pa. 1985).

This case established the standard that when there is questions for reliability of scientific evidence, the Court should exercise an evidentiary relevancy hearing. This pre trial hearing is the most efficient procedure for a court to determine the reliability which outweighs the Fryes general Acceptance Standard.

The case *People of the State of New York v. Joseph Castro*,⁶³⁸ represented the most critical assessment of DNA technology wherein the New York Supreme Court investigated the admissibility of DNA tests in a pre-trial hearing applying the rigorous Frye standard, ignoring the 1988 Andrews ruling based on the Downing relevancy test and the Rule 702 reliability test. Life code Corporation was able to analyse a bloodstain on the watch of Joseph Castro, a 38 year old Hispanic accused of murdering a 22 year old pregnant neighbour and her two year old daughter, and found it to match to the victims with the chance of a random match in the Hispanic population being one in one hundred million.

Judge Gerald Sheindlin developed a three pronged test, “Presence of a generally accepted theory in the scientific community which support the conclusion that DNA forensic testing can produce reliable results; currently existing techniques or experiments that are capable of producing reliable results in DNA identification, and which are generally accepted in the scientific community; and whether the testing laboratory perform the accepted scientific techniques in analysing the forensic samples in this particular case”.

⁶³⁸ *People of the State of New York v. Joseph Castro*, 545 N.Y.S.2d 985 (Sup. Ct. 1989).

The Castro 3 prong test serves as a standard for which future DNA evidence can be judged in pre - trial hearings. The case highlighted the need for rigorous experimental standards for performing DNA fingerprinting, including proper positive and negative controls, so the FBI created its “Technical Working Group on DNA Analysis Methods” or TWGDAM, whose universal recommendations remain in effect to this date.

In *U.S. v. Matthew Sylvester Two bulls*⁶³⁹, U.S District Court sentenced Mathew Two Bulls for aggravated sexual abuse on a minor. The investigating agency found that semen on the undergarments of the girl was of two bulls. He was convicted on the basis of this scientific evidence. In the Court of appeal he argued that the standard in which trial Court applied when determining the admissibility of DNA evidence was more rigorous Fyre rule and not Rule 702. He had also questioned the reliability and test performance. Court of appeal made a 5 pronged test including standards of Fyre, Rule 702, Castro and two additional test for admissibility of DNA evidence.

- Whether the scientific community generally accepts DNA evidence?
- If the research procedures used in this situation are normally recognized as reliable if Properly performed?
- If the test in this case was properly conducted
- If the proof in this case is more prejudicial than probative?

⁶³⁹ U.S. v. Matthew Sylvester Two bulls, 18 U.S.C. §§ 1153, 2241(a) (1) (1989).

- If the figures used to assess the likelihood of someone else possessing the same genetic traits under Rule 403 are more probative than prejudicial.

After lengthy discussion appellate court ruled that DNA evidence was admissible in Two Bullas case and conviction was upheld.

*Daubert v. Merrell Dow Pharmaceuticals*⁶⁴⁰, was a landmark judgment that questioned whether Frye general acceptance test for admitting scientific evidences had been superseded by Rule 702 of Federal Rules of Evidence. However, the court retained that this test as one of the several factors for determining admissibility of Scientific evidence. Court has also adopted relevance and reliability standard as provided in the Federal Rules of Evidence.

In this case petitioner Daubert and his brother were minor children born with serious birth defects. They sued through their parents that birth defect was the result of anti-nausea drug which was manufactured by respondent company. They sued against respondent company in California State Court. The respondent contended that their drug Benedictine did not cause any birth defects to humans. They submitted an affidavit of physician and epidemiologist; the experts had examined more than 30 published studies and literature about Benedictine and concluded that it has no indication to cause birth defects. Against the contention of respondents, petitioner submitted affidavit of eight experts who concluded that Benedictine was capable of causing birth defects. Against this respondent argued that this evidence was not admissible as it

⁶⁴⁰ *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993),

contradicts weight of scientific authority. Court concluded that studies conducted by plaintiff lacked general acceptance standards as insisted by Fyre Court. Court proposed a special burden on trial judges in order to determine the reliability and relevancy. They have to determine whether expert was proposing to testify, the scientific knowledge which will assist the trier of facts to understand and determine a fact in issue. Thus Court gave trial judges gate keeping role as they are evaluating reasons or methodology to determine whether it is scientifically valid.

After the analysis of detailed study of Fyre and federal Rules of Evidence Court put 4 criteria in order to admit scientific evidences

- The theory or technique used has been tested;
- Whether it has been peer reviewed;
- Its known or potential error rate and, the existence and maintenance of standards controlling its operation, and;
- Whether it has been accepted within a relevant scientific community.

“Daubert Standards”, tremendously changed the face of scientific evidence not only in the USA but in the world community.

Moreover the Court stated that trial Court while considering the admissibility of scientific evidence must keep in mind rule 703⁶⁴¹, 706⁶⁴² and

⁶⁴¹. An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted. But if the facts or data would otherwise be inadmissible, the proponent of the opinion may disclose them to the jury only if their probative value in helping

403⁶⁴³.

Since 1993, these Daubert rules have been used as fundamental basis for admitting scientific expert testimony.

In the case of *Kumbo Tyre Co. v. Carmichael*⁶⁴⁴, The main question raised was whether Daubert standard applies technical or non-scientific experts.

In this case three important questions were considered by Supreme Court.

1. Whether trial Court expert testimony as provided in Daubert applies to all experts scientific or non-scientific.
2. Whether trial Courts have greater discretion in determining whether to apply Daubert factors
3. Whether trial courts have broad discretion to determine what proceedings are necessary to evaluate an expert reliability in a particular case.

Court opined that it is the discretionary power of the trial judge to select any one or more of factors to be determined while evaluating the

the jury evaluate the opinion substantially outweighs their prejudicial effect. [https://www.law.cornell.edu/rules/fre/rule 703](https://www.law.cornell.edu/rules/fre/rule%20703) (last viewed on Dec. 28, 2020)

⁶⁴² Rule 706 provides appointment of experts. On a party's motion or on its own, the court may order the parties to show cause why expert witnesses should not be appointed and may ask the parties to submit nominations. The court may appoint any expert that the parties agree on and any of its own choosing. But the court may only appoint someone who consents to act. [https://www.law.cornell.edu/rules/fre/rule 703](https://www.law.cornell.edu/rules/fre/rule%20703) (last viewed on Dec. 28, 2020)

⁶⁴³ Rule 403 provides the court may exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence. [https://www.law.cornell.edu/rules/fre/rule 703](https://www.law.cornell.edu/rules/fre/rule%20703) (last viewed on Dec. 28, 2020).

⁶⁴⁴ *Kumbo Tyre Co. v. Carmichael*, 526 US 137(1999).

admissibility⁶⁴⁵. In this context Court explicitly held that there was no difference between scientific and technical knowledge⁶⁴⁶.

The court decided that Daubert could be applied to all testimony without any classification between scientific and non-scientific and settled long debatable issue.

Though there were some criticisms against the Fyre general acceptance standard it gave some help to trial judges when there were no standard for evaluating scientific evidence. It was the first test which helped the reliability of scientific evidences for the first time. Court stated that scientific community must accept every scientific invention. Even though Fyre decision became the philosophical core for evaluating scientific expert testimony, as it was a Circuit Court decision majority of U.S Court did not recognized it and some courts were seriously criticised it.

The Fyre rule was rectified by Federal Rules of Evidence, 1975. But it omitted to say whether it supersede Fyre test. Hence some Courts accepted it and some court rejected general acceptance rule. This resulted in the formation of new standards like reliability test, reasoning test etc.

This was finally settled in *Daubert v. Merelle Daw Pharmaceuticals*. In this case Supreme Court of United States held that Federal Rules of Evidence Supersede Fyre Standard. Court formulated a new standard relying on Federal

⁶⁴⁵. *Kumbo Tyre Co. v. Carmichael*, 526 US 137(1999).

⁶⁴⁶. Dr. Dinakar V.R, *Finger printing Identification Evidence; A critical Analysis of the Reliability in Post Daubert – Kumbo Scenario VI IJLT*, 123 (2006).

Rules of Evidence. Court formulated that evidence must be classified as scientific and non-Scientific. This case recommended the gate keeping role of judges to ensure the reliability of scientific evidence. Many courts criticised this test replaced 70 years old Fyre conservative test. The judgement was silent about whether decision could be applied in non-scientific evidence.

Later, the Supreme Court of U.S. in *Kumho Tyre Co v. Charmical* clarified that trial judge's duty to act as gatekeepers would apply to all forms of expert testimony. Through these decisions admissibility of scientific testimony were settled in U.S.A.

After the pronouncement of Daubert case, DNA technology is extensively used in USA not only for the purpose of proving the innocence of under trial persons in pending cases but also for exonerating those prisoners who were earlier convicted by conventional system of justice⁶⁴⁷. The Daubert test imposes a gatekeeper duty on trial court .i.e. the trial court to determine whether scientific evidence is both reliable and relevant⁶⁴⁸.

7.2.2. LEGISLATIONS ON SCIENTIFIC EVIDENCE

The application of scientific evidence in USA is evident from the number of Acts that have been passed or amended in order to include scientific evidences in investigation and derive its benefits. But the use scientific techniques of investigation are not focused only on raising the conviction rate,

⁶⁴⁷. DR. LILY SRIVASTHA VA LAW RELATING TO SCIENCE AND TECHNOLOGY 265 (Thomson Reuters 2016).

⁶⁴⁸. H. J. WALLS, FORENSIC SCIENCE - AN INTRODUCTION TO SCIENTIFIC CRIME DETECTION 86 (Universal Law Publishing Co. Pvt. Ltd 2002).

on the other hand the techniques have been imbibed in the system to serve justice.

7.2.2.1. DNA IDENTIFICATION ACT, 1994

In 1994 DNA Identification Act was passed, which authorized FBI to establish Combined DNA Index System (CODIS). National Index of DNA identification records of persons convicted of crimes, analyses DNA samples recovered from crime scene, and also analyses DNA samples recovered from unidentified human remains. CODIS is a computer software program that operate, local. State and National database of DNA profiles from convicted offenders, unsolved crime scene evidences, and missing persons. Each state in US has statutory provisions for establishment of DNA database that allows for the collection of DNA profiles from offenders convicted of particular crime. The DNA Act imposed criminal penalties for individuals who improperly disclose sample results or improperly obtains or used DNA samples⁶⁴⁹.

Many of these recommendations are incorporated into Federal and State DNA statutes. More importantly, these recommendations have served as guide principles for development and implementation of the CODIS Program and Separation of NDIS.

⁶⁴⁹ 42 U.S.C section 14135 e(c).

7.2.2.2. DNA BACKLOG ELIMINATION ACT, 2000

The Congress in 2000 passed the DNA Analysis Backlog Elimination Act (DNA Act),⁶⁵⁰ Section 14135 authorising the Attorney General to make grants to eligible states to carry out samples of DNA analysis of samples taken from individuals convicted of a qualifying state offences for inclusion in CODIS of the FBI. The Act provides for the collection of DNA sample from each individual, convicted or has been convicted of a qualifying Federal Offence⁶⁵¹. The Congress has also mandated the Bureau of Prisons to collect DNA samples from each individual in its custody or any individual under the supervision of the Agency who is on supervised release, parole or probation who is or has been convicted of a qualifying District of Columbia.

7.2.2.3. USA PATRIOT ACT, 2001

The Act was result of the terrorist attack of September 11, 2001. It creates new crimes, new penalties, and new procedural efficiencies for use against domestic and international terrorists. It permit the list of qualified offences to permit DNA collection from those convicted of federal crimes.

⁶⁵⁰. It is a United States Act of Congress that primarily allows US states to carry out DNA analyses for use in the FBI's Combined DNA Index System and to collect and analyze DNA sample. <https://www.govtrack.us/congress/bills/> (last viewed on Dec. 30, 2020).

⁶⁵¹. 42 U.S.C.A SECTION 1435.

7.2.2.4. ADVANCING JUSTICE THROUGH DNA TECHNOLOGY ACT OF 2003

In 2003 Advancing Justice Through DNA Technology Act was passed⁶⁵² to eliminate substantial backlog of DNA samples collected from crime scene and convicted offenders, to improve and expand DNA testing capacity of Federal, state and local crime laboratories and to increase research and development of new DNA testing technologies, to develop new training program regarding collection and use of DNA evidence and other purpose.

7.2.2.5. JUSTICE FOR ALL ACT, 2004

In 2004 justice for all Act was passed which authorised material changes to DNA identification Act, 1994⁶⁵³. It expanded national DNA data Base by allowing for the inclusion of virtually any DNA information that any state chooses to collect except DNA profiles of arrestee who have not been charged in the indictment or information may not be uploaded. Likewise samples that are voluntarily submitted for the purpose of elimination from a scene of crime sample may not be uploaded.

⁶⁵². Objective of the act is to eliminate the substantial backlog of DNA samples collected from crime scenes and convicted offenders, to improve and expand the DNA testing capacity of Federal, State, and local crime laboratories, to increase research and development of new DNA testing technologies, to develop new training programs regarding the collection and use of DNA evidence, to provide post-conviction testing of DNA evidence to exonerate the innocent, to improve the performance of counsel in State capital cases, and for other purposes. <https://www.govtrack.us/congress/bills/108/> (last viewed on Dec. 30, 2020).

⁶⁵³. The Justice for All Act of 2004 was enacted to protect crime victims' rights, eliminate the substantial backlog of DNA samples collected from crime scenes and convicted offenders, and improve and expand the DNA testing capacity of federal, state, and local crime laboratories.

Supreme Court in *Maryland v. King* held that when officers arrest someone for a serious crime, they are allowed to examine a cheek swab for the DNA of the arrestee and the same is valid under fourth the amendment of U.S. Constitution. Court held that DNA testing involves minimal quick and painless intrusion when probable cause exists for collection of body samples.

The Justice for All Act, 2004 signed into law by President Bush on 30th Oct 2004 and becoming Public Law which was the most important of the legislation adopted on the basis of the National Institute of Justice report, providing directions and funding to the Department of Justice and other agencies with the goal of carrying out of the many objectives stated in the president's DNA initiative.

7.2.2.6. VIOLENCE AGAINST WOMEN ACT, 2005

The DNA legislation was further expanded in U.S. by passing of the Violence against Women Act, 2005 in order to enhance judicial and law enforcement tools to combat violent crime.

7.2.2.7. SEXUAL ASSAULT FORENSIC REPORTING ACT, 2017 (SAFER)

It increases funding to test and analyze untested DNA evidence and offender samples. In USA legislations were introduced in tune Science and Technology in the Federal and State level and its admissibility was also settled by the judiciary.

7.3. CRIMINAL INVESTIGATION IN UNITED KINGDOM

The United Kingdom of Great Britain and Northern Ireland (UK) consists of four countries: England, Wales, Scotland and Northern Ireland. Some law applies throughout the whole of the UK; some applies in only one, two or three countries. The process of criminal investigation in Great Britain has essentially codified by two statutes, Police and Criminal Evidence Act of 1984⁶⁵⁴, and Criminal Procedures and Investigations Act of 1996⁶⁵⁵.

7.3.1. LEGISLATIONS ON SCIENTIFIC EVIDENCE

Following are the important statutes in UK dealing with scientific investigation.

7.3.1.1. POLICE AND CRIMINAL EVIDENCE ACT OF 1984

Before January 1986 when the Police and criminal evidence Act, 1984 came into effect the law governing police powers for investigation of crime was unclear and antiquated.⁶⁵⁶ Human right violations and Police bias continue to exist in English legal system despite several Statutes. In 1978 Royal Commission on Criminal Procedure was appointed to consider the powers and

⁶⁵⁴. The purpose of the Police and Criminal Evidence Act 1984 was to unify police powers under one code of practice and to carefully balance the rights of the individual against the powers of the police.

⁶⁵⁵. It sets out the manner in which police officers are to record, retain and reveal to the prosecutor material obtained in a criminal investigation and which may be relevant to the investigation, and related matters.

⁶⁵⁶. KEN LIDSTONE, CLARE PALMER, BEVAN AND LID STONE'S THE INVESTIGATION OF CRIME – A GUIDE TO POLICE 1 (Butterworths 1996).

duties of police in respect of the investigation of criminal offences and rights and duties of suspect and accused person, including the means by which they are secured. The commission recommended a fair, open, efficient and workable system⁶⁵⁷ and its recommendation formed the basis of Police and Criminal Evidence Act, 1984.

This Act provided a new basis for exercise of police powers and judicial discretion to the admissibility of evidence. It contains eight codes, each dealing with separate powers of the police. It confers wide powers on the police to conduct search, seizure, detention and interrogation. PACE Act is attempted to achieve a balance between police powers and the individual liberty. It contains effective controls to limit the circumstances in which a police power may be exercised and the manner in which it is to be exercised⁶⁵⁸. The Code of practice attached to the PACE Act are the guidelines for the exercise of powers by the police mentioned in the Act.

As per PACE ACT 1984, police can only exercise certain powers if there are reasonable grounds to believe that the offences for which the person is arrested and detained, or in respect of which the power is to be exercised, is a serious arrest able offence⁶⁵⁹.

⁶⁵⁷. ANDREW SANDERS & RICHARD YOUNG, CRIMINAL JUSTICE_18 (Butterworth 2000).

⁶⁵⁸. KEN LIDSTONE, CLARE PALMER, BEVAN AND LID STONE'S THE INVESTIGATION OF CRIME – A GUIDE TO POLICE 13 (Butterworths 1996).

⁶⁵⁹ · Arrestable crimes are offence for which the sentence is fixed by law or for which the sentence is five years imprisonment. The significance is that any person may arrest anyone committing such an offence or anyone whom he reasonably suspects to be committing such an offence without a warrant.

PACE Act stipulates that a police officer must provide certain information to the suspects before searching a person, including the officer's name and the police station, the object of the proposed search and the grounds for the search⁶⁶⁰. Officers must make the record of the search and a copy must be supplied to the suspect. If the search is illegal, the suspect can approach the Police Complaints Authority⁶⁶¹. This Act permits taking of finger print of person over 10 years of age without consent who has been charged with or has been told that he will be reported for a recordable offence⁶⁶². If convicted of recordable offences fingerprints may also be taken without consent and if given a custodial sentence they will be taken while in prison custody⁶⁶³. The purpose of taking finger print post-conviction is to enable police to build up a data bank of fingerprints for purposes of comparison in the investigation of other offences. No persons fingerprint may be taken without the appropriate consent⁶⁶⁴. Appropriate consent means in relation to a person who has attained the age of 17⁶⁶⁵ the consent of that person, in relation to person who has not attained that age but has attained age of 14 then consent of that person and his parent or guardian⁶⁶⁶ in relation to a person who has not attained age of 14

⁶⁶⁰. The Police and Criminal Evidence Act, 1984, S. 2 (2) b, 2(3), 3(1), 3(7), Acts of Parliament, 1984 (UK).

⁶⁶¹. The Police and Criminal Evidence Act, 1984, S 67(2), Acts of Parliament, 1984 (UK).

⁶⁶². The Police and Criminal Evidence Act, 1984, S. 61, Acts of Parliament, 1984 (UK).

⁶⁶³. KEN LIDSTONE, CLARE PALMER, BEVAN AND LID STONE'S THE INVESTIGATION OF CRIME – A GUIDE TO POLICE 22 (Butterworths 1996). This category of offences is defined in the national police records (recordable offences regulations 1985 and includes all offences punishable by imprisonment and a small no of non-impressionable offences.

⁶⁶⁴. The Police and Criminal Evidence Act, 1984, S 65, Acts of Parliament, 1984 (UK).

⁶⁶⁵. The Police and Criminal Evidence Act, 1984, S 65 (a), Acts of Parliament, 1984 (UK).

⁶⁶⁶. The Police and Criminal Evidence Act, 1984, S 65(b), Acts of Parliament, 1984 (UK).

years, the consent of his parent or guardian⁶⁶⁷. Consent to the taking of a person's fingerprint must be in writing if it is given at a time when he is at police station. The PACE act also provides for destruction of fingerprint and samples⁶⁶⁸ if he is cleared of that offence.

In England till the establishment of Crown Prosecution service in 1986, crown prosecution had active role in investigation. This Act recommended that Crown prosecution Service shall not have supervisory role in the police investigators but it can advise the police in investigation.

Though Police and Evidence Act, contain provisions for collection of samples and fingerprint but for efficient functioning of criminal justice system crime scene investigation in UK is conducted by crime scene investigators. They gather forensic evidences from crime scene which will ultimately lead to detection and prosecution of criminals. They are not police officers but supporting staffs who are employed for police officers. They could be asked to attend crime scenes where potential forensic evidences have been identified. They will reach the crime scene in a fully kitted van with most modern crime scene apparatus's which will diminish the possibility of contamination of crime scene evidences

⁶⁶⁷. The Police and Criminal Evidence Act, 1984, S 65(c), Acts of Parliament, 1984 (UK).

⁶⁶⁸. The Police and Criminal Evidence Act, 1984, S 64(b), Acts of Parliament, 1984 (UK).

7.3.1.2. CRIMINAL PROCEDURES AND INVESTIGATION ACT, 1996

It is considered to be main law relating to investigation in UK. In this code criminal investigation is an investigation conducted by police officers with a view to it being ascertained whether a person should be charged with an offence, or whether a person charged with an offence is guilty of it⁶⁶⁹. It sets out the manner in which police officers are to record, retain and reveal to the prosecutor material obtained in a criminal investigation and which may be relevant to the investigation, and related matters.

Section 23 of the Act put the burden of proof on the State and to procure a reasonable and fair model of investigation while recording all material evidence. Section 2 of the Act lays down the role of variety of persons including the disclosure officer⁶⁷⁰ officer in charge of investigation⁶⁷¹, investigator⁶⁷² and prosecutor⁶⁷³.

⁶⁶⁹. Criminal Procedure and Investigation Act, 1986, S 22, Acts of Parliament, 1986 (UK).

⁶⁷⁰. The disclosure officer is responsible for a range of duties including examining material retained during the investigation, The disclosure officer “reveals” material to the prosecutor by drawing his/her attention to material that is potentially disclosable, and providing copies of certain categories of material. <https://www.hse.gov.uk/enforce/enforcementguide/pretrial/> (last viewed on Jan. 15, 2021).

⁶⁷¹. Officer in charge of investigation is the inspector responsible for directing an investigation. They are also responsible for ensuring that there are proper procedures in place in the investigation for recording information and retaining records of information and other material.

⁶⁷². Investigator any investigator, including a specialist investigator, involved in the conduct of a criminal investigation. All investigators have a responsibility for carrying out the duties imposed under the Code including in particular recording information, and retaining records of information and other material. The most important of these responsibilities is for an investigator to pursue all reasonable lines of enquiry, whether these point towards or away from a suspect. What is reasonable will depend upon the circumstances of a particular case.

⁶⁷³. Prosecutor - this is the authority responsible for the conduct of criminal proceedings resulting from a specific investigation.

7.3.1.3. THE REGULATION OF INVESTIGATORY POWERS ACT, 2000⁶⁷⁴

To curb abuse in the system, UK Government decided in 2000, to pass regulation of Investigatory powers, which essentially regulate the powers of public authorities to carry out surveillance and investigation from work. This Act was enacted to “make provision for and about the interception of communications, the acquisition and disclosure of data relating to communications, the carrying out of surveillance, the use of covert human intelligence sources and the acquisition of the means by which electronic data protected by encryption or passwords may be decrypted or accessed; to provide for Commissioners and a tribunal with functions and jurisdiction in relation to those matters, to entries on and interferences with property or with wireless telegraphy and to the carrying out of their functions by the Security Service, the Secret Intelligence Service and the Government Communications Headquarters; and for connected purposes”.

7.3.1.4. CRIMINAL JUSTICE AND POLICE ACT, 2001

This Act was enacted to give extra powers to Police with the aim to tackle crime and disorder more effectively.

⁶⁷⁴. The purpose of the Act is to investigations into crimes that have been committed; with a view to the possible institution of criminal proceedings; and investigations which begin in the belief that a crime may be committed, for example when the police keep premises or individuals under observation for a period of time, with a view to the possible institution criminal proceedings.

7.3.1.5. POLICING AND CRIMES ACT, 2017

This Act was passed by the British parliament in order to make provision for collaboration between emergency services.

7.3.1.6. THE SERIOUS ORGANIZED CRIME AND POLICE ACT 2005

The impact and results of this scientific approach were so profound that The Serious Organized Crime and Police Act was passed in 2005⁶⁷⁵ to extend the use of NDNAD to include identification of deceased person or body parts.

7.3.1.7. COUNTER TERRORISM ACT, 2008

Counter terrorism Act was passed in the year 2008,⁶⁷⁶ which expanded the power of the police to take DNA and fingerprints from person and retain them indefinitely when acting in the interest of national security. This resulted in the adoption of the Crime and Security Act in 2010⁶⁷⁷. Under crime and security Act, 2010 this DNA records and fingerprints of an innocent person could be retained for a period of 6 years. However, the DNA samples stored in the commercial laboratories would be destroyed within 6 months. In *Murray v. UK*⁶⁷⁸ European Court found that though not specifically mentioned in Article

⁶⁷⁵. It is an Act to provide for the establishment and functions of the Serious organized Crime Agency; to make provision about investigations, prosecutions, offenders. <https://www.legislation.gov.uk/ukpga/2005/15/contents> (last viewed on Jan. 15, 2021).

⁶⁷⁶. It is an Act to confer further powers to gather and share information for counter-terrorism and other purposes; <https://www.legislation.gov.uk/ukpga/2008/28/contents> (last viewed on Jan. 15,2021)

⁶⁷⁷. The Act provides police with the powers to take fingerprints and non-intimate samples from those arrested, charged or convicted of a recordable offence, and from offenders convicted overseas of “qualifying” offences. <https://www.legislation.gov.uk/ukpga/2010/17/contents> (last viewed on Jan.15, 2021)

⁶⁷⁸. *Murray v. UK*, (1996)22 EHRR 29

6 right to silence is generally recognized International standard which lies at the heart of a fair Procedure⁶⁷⁹. However the right is not absolute.

7.3.2. ADMISSIBILITY OF SCIENTIFIC EVIDENCE

Now scientific evidence are being extensively used in criminal investigations around the world. When such evidence are comes before the court, the question of its admissibility usually arises as these evidences are given by experts who are not direct witness to the facts of the case. The expert helps the court to reach a conclusion by presenting before the Court all the materials, together with reasons which induce him to come to the conclusion. The court has to closely examine whether the expert opinion has been correctly reached based on the admissibility standard as laid down under law. Various countries have followed particular standards to evaluate scientific evidence.

The United Kingdom has been in the fore front of the DNA Technology, ever since Professor Allec Jeffreys of the University of Leicester stumbled on a way of establishing a human's genetic identification, also known as "DNA Fingerprinting". Not only has the discovery of this technique, United Kingdom can also be credited with spear heading the application of this technique by widely adapting it for forensic, investigation procedures, and by backing the same with regulatory and legislative changes.

It was the Forensic Use of DNA samples in capturing Colin Pitchfork⁶⁸⁰, a local man responsible for two rapes and murders in 1980, that lead to the use

⁶⁷⁹. MADELINE COVIND AND JONATHAN COOPER, HUMAN RIGHT IN THE INVESTIGATION AND PROSECUTION OF CRIME (Oxford university press 2009)

of DNA in law enforcement. In 1993 that the Royal Commission on Criminal justice recommended the establishment of a DNA database⁶⁸¹. The Criminal Justice and Public Order Act (CJPOA) mandated establishment of the England and Wales National DNA Database (NDNAD), currently the world's largest forensic database. United Kingdom's success in establishing a system of DNA Fingerprinting wasn't only limited to creating the database. But appropriate changes were made to relevant statutes to maximize efficacy of DNA Fingerprinting on Law enforcement.

The first document to be amended on this basis was Police and Criminal Evidence Act 1984 (PACE). Prior to the enactment of the Criminal Justice and Public Order Act 1994, collection of evidence from suspects was permitted under the 1984 PACE, but that required only in serious cognizable offence and was limited to collection of fingerprints. The Police and Criminal Evidence Act prior to the amendment had some inherent limitations that could limit the application of CJPOA effectively. The Officer needed to obtain consent from higher authority and the suspect had to be informed that they would be reported for such an offence.

⁶⁸⁰. R v. Pitch fork, 2009 (EWCA CRIME 963) - The first murder conviction based on DNA profiling evidence was done in the case of Colin Pitchfork and he was the first to be caught as a result of mass DNA screening. He raped and murdered two girls and the Forensic examination of semen sample showed that it was a type found in only 10% of men, and was from someone with type A blood. However, the police did not find a suspect. The scientists compared the semen samples with a blood sample from the suspect. This proved that both the girls were murdered by the same man and also proved that the suspect was innocent. In January 1988, Pitchfork was sentenced to life imprisonment for the murders and was told to serve a minimum of 30 years.

⁶⁸¹. Britain was the first country to have National DNA Data base.

After the amendments to PACE, the Criminal Justice and Public Order Act gave the additional power to obtain and retain CJ samples (cheek scrapes or rooted hairs). With this permission the officers could now collect non intimate samples without consent in connection with any recordable offence, widening the pool of criminal suspects from which the CJ samples were available. Further changes to The Criminal Justice and Public Order Act in 1996 further broadened the scope of investigation by giving the police power to search samples from across the United Kingdom.

However, the judgment in the case of *S and Marper v. United Kingdom*⁶⁸² held by the European Court of Human Rights that this blanket retention of the samples interfered with people's privacy, and is a violation of the right to privacy under the European Convention on Human Rights of Article 8⁶⁸³.

In this case, two British citizens, Mr. Michael Marper and S filed separate petitions for destruction of fingerprint and bodily samples. S was arrested in 2001 for attempt to robbery and was subsequently acquitted. Similarly Marper was charged for harassment to his partner and the case was later discontinued as the partner reconciled. Both the applicant requested for destruction of fingerprint and bodily samples but the police refused. They applied for judicial review of the decisions of the officers not to destroy the

⁶⁸². *S and Marper v. United Kingdom*, 2008(ECHR) 581

⁶⁸³. Article 8 of the European Convention on Human Rights provides a right to respect for one's "private and family life, his home and his correspondence".

samples. They contended that while no charges were ever pressed and criminal proceedings were never launched, their DNA profile remained on the database.

The application was rejected by Administrative Court against this they filed appeal in Court of Appeal which also upheld the decision of the Administrative Court. When deciding whether or not the DNA samples should be held, Lord Justice Walker of the Court of Appeal used a balance test and determined that the benefits of achieving the United Kingdom's goals of prosecuting and avoiding crime greatly outweighed the risks of retaining the genetic materials. An appeal before the House of Lords was also rejected, concluding that the preservation of fingerprints and DNA samples did not constitute an interference with the right to protect private life, but that it was also modest even if there was interference. The judges observed that the minimal intervention was justified on the basis of the objective of preserving DNA profiles, the objective of preventing future crime and the right of other people to be free of crime. Finally the matter was brought before the 17 judge bench of European Court of Human Rights. The bench unanimously found, however that the retention of DNA samples in England , Wales and Northern Ireland was in breach of Article 8 and awarded S and Marper 42, 000 pounds each. Focusing on how other Member States were coping with the collection and preservation of DNA, the Court maintained that Scotland had established a fair and proportionate DNA method: indefinite retention for convicted persons, destruction of samples and profiles for those acquitted or whose charges were dropped, and stressed that government involvement with intimate information

of individuals The Court concluded that in this situation, the United Kingdom was beyond the margin, and the correct balance was not reached by indefinite retention.

The Supreme Court of the United Kingdom ruled by a majority in 2011 that the existing DNA retention rules of the Association of Chief Police Officers (ACPO) were unconstitutional because they were not consistent with Article 8 of the European Convention on Human Rights (ECHR). The 2012 Security of Freedoms Act obtained Royal Assent, putting into effect in October 2013 a new system for police collection of fingerprints and DNA data for innocents on NDNAD. The 2012 Security of Freedom Act allows a speculative search of the DNA and finger prints of an accused but not convicted person against crimes stored on the databases, to verify if they fit any crime on the database, and to remove the profile and fingerprint s until the search has been completed. The Act also requires Chief Constables, if considered appropriate for crime prevention or identification, to apply for extensions to the specified retention periods for DNA profiles and fingerprints. The Act includes the appointment of a Biometric Commissioner who in addition to approving applications for extensions, will have a general duty to keep the preservation and use of DNA and fingerprints under scrutiny, including reviewing any retention applications made for national security purposes. The Act also provides that it is appropriate to remove any DNA and fingerprints taken from a person arrested for a minor offence but never convicted. Any arrested person's DNA and fingerprints will be speculatively checked for the crimes

stored on the national DNA and fingerprint databases before deletion. The destruction of DNA samples began in December 2012, with DNA samples of all individuals, even those convicted of crimes, being destroyed because of the sensitivity of the material and the fact that it was no longer needed once the DNA profile has been obtained.

Strict protocols are followed throughout the collection submission and analysis of DNA samples to minimize the possibility of analytical error and contamination. United Kingdom Accreditation Service (UKAS) is the sole national Accreditation body for the United Kingdom. It is recognized by the government to assess the international agreed standards, inspection, testing and certification.

Rule against self-incrimination and right to privacy being common law privileges also provided in Article 6 (1) and article 8, of the European Convention of Human Rights⁶⁸⁴ which has been guaranteed to citizen at the time of police investigation. These rights provided are not absolute; the public authorities can intrude into those rights without arbitrariness⁶⁸⁵. This case had a profound impact. It was after this case that the Protection of Freedom act, 2012

⁶⁸⁴. Article 6 of the European Convention on Human Rights is a provision of the European Convention which protects the right to a fair trial. In criminal law cases and cases to determine civil rights it protects the right to a public hearing before an independent and impartial tribunal within reasonable time, the presumption of innocence, right to silence and other minimum rights for those charged in a criminal case.

⁶⁸⁵The authorities may curtail such right accordance with the law which are necessary in a democratic society in the interests of national security, private safety, or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health and morals, or for the protection of the rights and freedom of others.

was passed in-order to balance the person's right to privacy while deriving the benefit of DNA profiling.

UK Parliament enacted Data protection Act in 2018 in order to update the Data Protection Act of 2008. The objective of the Act is to control the information's used by the organizations, business or government. As per the act institutions which are responsible for using personal data has to follow strict rule approved by General Data Protection Regulation (GDPR)⁶⁸⁶.

In UK role of expert is to assist the court on matters within their expertise in order to decide reliability of evidences. Civil Procedure Rules, 1988 states that duty of expert is to assist the Court on matters within their expertise⁶⁸⁷. At the same time, the court has power to restrict expert evidence as well⁶⁸⁸.

Earlier the position in England was in order to admit particular scientific evidence it must be helpful to trier of the facts. If it is helpful then it is

⁶⁸⁶ Eight Principles of Data Protection

- Fair and lawful. ...
- Specific for its purpose. ...
- Be adequate and only for what is needed. ...
- Accurate and up to date. ...
- Not kept longer than needed. ...
- Take into account people's rights. ...
- Kept safe and secure. ...
- Not be transferred outside the EEA

⁶⁸⁷ Rule 35.3 of the Civil Procedure Rules 1998.

⁶⁸⁸ (1) No party may call an expert or put in evidence an expert's report without the court's permission. (2) When parties apply for permission they must provide an estimate of the costs of the proposed expert evidence and identify – (a) the field in which expert evidence is required and the issues which the expert evidence will address; and (b) where practicable, the name of the proposed expert. (3) If permission is granted it shall be in relation only to the expert named or the field identified under paragraph (2). The order granting permission may specify the issues which the expert evidence should address. (3A) Where a claim has been allocated to the small claims track or the fast track, if permission is given for expert evidence, it will normally be given for evidence from only one expert on a particular issue.

admissible regardless of whether its theory or technique that forms the basis of testimony is reliable or the relevant scientific community accepts it⁶⁸⁹. In England no general test has been explicitly stated as in American Courts, but the evidence is helpful or not will be determined by trial court judges according to his subjective satisfaction after considering the nature of evidence produced. The court can decide the validity of experts and not necessary that he must formally qualified.

In *R. v. Silverlock*⁶⁹⁰, Justice Russel held that only a person who has sufficient skill, knowledge or experience in his trade or profession are considered as expert. A person becomes an expert in specialisation without any rigorous training or any specialisation. In *Liddle v. Middleton*⁶⁹¹ it was held that expert need to have expertise beyond that of a layman, but he must be qualified beyond that of a layman. The role of witness is not to articulate the client's position but to assist the court in decision making which has been discussed Lord President Cooper in *Davie v. Edinburgh Magistrate*⁶⁹². In this case court rejected opinion of expert witness saying that though he is skilled or eminent his duty is to give more than evidence.

“It is to furnish the Judge or jury with the necessary scientific criteria for testing the accuracy of their conclusions, so as to enable the Judge or jury to form their own independent judgment by the application of

⁶⁸⁹ · V.R. Dinakar, *Evaluating Scientific Evidence: A precedential Overview* CULR, 227(2010).

⁶⁹⁰: *R. v. Silverlock*, [1894] 2 QB 766

⁶⁹¹: *Liddle v. Middleton*, [1894] 2 QB 766 [4]

⁶⁹²: *Davie v. Edinburgh Magistrate*, 1953 SC 34.

these criteria to the facts proved in evidence. The scientific opinion evidence, if intelligible, convincing and tested, becomes a factor (and often an important factor for consideration along with the whole other evidence in the case, but the decision is for the Judge or jury. In particular the bare ipse dixit of a scientist, however eminent, upon the issue in controversy, will normally carry little weight, for it cannot be tested by cross-examination nor independently appraised, and the parties have invoked the decision of a judicial tribunal and not an oracular pronouncement by an expert”⁶⁹³.

In *R v. Turner*⁶⁹⁴ English Court of appeal held that if the tribunal has sufficient knowledge and understanding of the subject, court can render expert evidence inadmissible. Helpfulness standard was established for the first time in this case. Lord Justice Lawton held that

“The fact that an expert witness has impressive scientific qualifications does not by that fact alone make his opinion on matters of human nature and behaviour within the limits of normality any more helpful than that of the jurors but there is a danger that they may think it does.”⁶⁹⁵

As per the Criminal Procedure Rules followed in Criminal trials the evidence of expert must be furnished to other side along with expert’s

⁶⁹³ Davie v. Edinburgh Magistrate, 1953 SC 34.

⁶⁹⁴ R v. Turner, [1975] QB 834.

⁶⁹⁵ Barry Turner, *Expert evidence United Kingdom, Canada, Australia* <https://www.researchgate.net/publication/259469283> (last viewed on Jan. 15, 2021).

observations, calculations and other procedure. Opinion evidence will be inadmissible if any failure to do so⁶⁹⁶. According to the subjective satisfaction and after considering the nature of evidence produced judges can determine whether particular piece of evidence is helpful. In *R v. Stock well*⁶⁹⁷ it was held that on the ultimate issue an expert cannot be asked to state his opinion⁶⁹⁸ it is question for the jury.

In England there is no uniform standard for evaluating scientific evidences. It is the discretion of trial judge in determining standards for admitting particular piece of evidence. English appellate Court had taken liberal view in admitting scientific testimony of expert while identifying voice of accused. Even expert stated that the technique used by him was unreliable in order to identify voice of accused but the Court admitted experts scientific testimony and said

*“Scientific expert testimony is admissible, if he is qualified by academic training and practical evidence and be able to give testimony with a value significantly greater than that of the ordinary untutored lay man”*⁶⁹⁹.

⁶⁹⁶ Criminal Procedure Rules are rules about criminal court procedure in magistrates' courts, the Crown Court, the Court of Appeal and, in extradition appeal cases, the High Court. Each Part of the Criminal Procedure Rules contains rules about parts of that procedure

⁶⁹⁷ *R v. Stock well*, (1993) 97 Cr App R 260.

⁶⁹⁸ *R v. Holmes*, [1953] 1 WLR 686.

⁶⁹⁹ V.R. Dinakar, *Evaluating Scientific Evidence: A precedential Overview* CULR, 279 (2010)

In *R v. Huckery*⁷⁰⁰, the court held that evaluating witness testimony on psychiatric evidence judges may exclude expert evidence as it is matters within his knowledge.

Though in England any particular standard has not been fixed for evaluating scientific evidence, government recommended Royal Commission to make certain reforms in Forensic Science.

Following recommendations were made by royal Commission;

- It has recommended for constitution of forensic science Board, forensic science regulator and also National institute for forensic science.
- Priorities shall be given to recently launch forensic capability network, established with the objective of addressing skills shortage and driving innovation in forensic science.
- Changes are also suggested in digital evidences⁷⁰¹.

But these recommendations were not implemented so far.

⁷⁰⁰: *R v. Huckery*, (2004) All .E.R. (D) 364

⁷⁰¹: New developments in the use of innovative technology for prosecutions, following the publication of the National Digital Policing Strategy which outlines key policing next 10 years, including priorities for the improving the efficient uses of mass data available to police developing digital channels for citizen engagement, utilizing technologies for identifying online and physical harms to support vulnerable groups, roll-out of digital consent forms and calls for the creation of a strategy to deal with the rapid growth of digital evidence, the role that technology will play in increasing the amount of digital evidence and personal information that can be gathered, ensuring that proper training is afforded to practitioners and best practice is used in relation to the increasing use of digital materials and AI, the impact on evidential standards, the workload of prosecutors, delays, privacy intrusion, personal freedoms and the number of requests for personal information in cases.

7.4. LEGALITY OF SCIENTIFIC INVESTIGATION IN OTHER COUNTRIES

7.4.1. AUSTRALIA

Though the Australian Constitution lacks a Bill of Rights, care has been taken to ensure for human rights particularly those in Art 14 of the ICCPR. While federal control over criminal law is extremely curtailed, the central government has laid down a Model Criminal Code so that they can facilitate uniformity between States regarding recognition of offences. Even though the crime is federal, the suit can end with different consequences depending on which state the trial is conducted in. This Model Criminal Code deals with procedure only indirectly and most clear provisions for investigation provided in a federal statute are found in the Crimes Act, 1914⁷⁰².

A common wealth agency crime Track⁷⁰³ established national Criminal investigation DNA Database in 2001 in order to accumulate DNA samples to be used for Investigation of crime. Part ID of the Crimes Act, 1914, which is a federal legislation which provides for forensic procedures to be carried out suspects for federal indictable offence, federal offenders serious offences and on volunteers.

⁷⁰². The Crimes Act 1914 is one of the first recognizable compilations of federal criminal law since federation in 1901. The Crimes Act deals with the most serious criminal offences against the Commonwealth.

⁷⁰³. Crime Track was a former Agency in the Attorney-General's Department that was merged with the Australian Crime Commission. It was established to deliver on the vision of sharing national policing information to achieve local, national and international policing outcomes.

Forensic procedures are carried out depending upon the classification of suspects. The procedure must be carried within the time limit. The consent of the person and the manner in which the procedures are to be carried out and the suspect's other rights are to be recorded. The process of questioning and executing forensic procedures must not be carried out in a cruel, inhuman or degrading manner. The samples collected should be such that part of them can be made available to the suspect also. A person can also volunteer to undergo a forensic procedure.

In Australia Standard of Admissibility is almost similar to United States⁷⁰⁴. In some State jurisdiction common law remains, but it is superseded by the Evidence Act, 1995. Admissibility of scientific evidences was very crucial with the decision of *Chembarline v. R*⁷⁰⁵. Accused Chamberlain was convicted for murder of her nine year old daughter Azaria, she narrated that she saw a dingo, wild dog carrying her baby. But the prosecution story was that she cut her baby's throat and buried it in sand. The case was circumstantial and was based on forensic evidence. The trial Court on the basis of scientific evidence convicted the accused and High Court also confirmed conviction. The decision was seriously criticised by Scientific Community of Australia about the prosecution blood evidence. The expert was also confused of whether the blood found on the car was human blood or not. The Royal Commission further reinvestigated the crime in order to look into the misuse of forensic evidence

⁷⁰⁴. V.R. Dinakar, *Evaluating Scientific Evidence: A precedential Overview* CULR, 227 (2010)

⁷⁰⁵. *Chembarline v. R*, (1984) 153 CLR 521.

by prosecution. Her conviction was quashed by Supreme Court of Northern Territory in 1988. Court noted that DNA testing was not advanced in 1980's. Hence statement given by the prosecution relied by the jury, and convicted.

Expert testimony crisis was almost settled after the passing of the Evidence Act, 1995. As per section 56 of Evidence Act, expert testimony is admissible if it is relevant. Section 76 of the Act deals with the opinion rule⁷⁰⁶ and exception to opinion rule is governed by section 79 of the Act⁷⁰⁷. But section 135 of the Act states that the court may refuse to admit evidence if its probative value is substantially outweighed by the danger that the evidence might – (a) be unfairly prejudicial to a party; or (b) be misleading or confusing; or (c) cause or result in undue waste of time.

*Makita (Australia) Pty Ltd. v. Sprowles*⁷⁰⁸, Heydon .J sets out the principles for admissibility as

“If evidence tendered as expert opinion evidence is to be admissible it must be agreed or demonstrated that there is a field of “specialized knowledge”; there must be an identified aspect of that field in which the witness demonstrates that by reason of specialized training, study or experience, the witness has become an expert; the opinion proffered must be “wholly or substantially based on the witness’s expert

⁷⁰⁶. Section 76 of the Act states that “Evidence of an opinion is not admissible to prove the existence of a fact about the existence of which the opinion was expressed.”

⁷⁰⁷. Section 79 of the Act states that, “If a person has specialised knowledge based on the persons training, study or experience, the opinion rule does not apply to evidence of an opinion of that person that is wholly or substantially based on that knowledge.

⁷⁰⁸. *Makita (Australia) Pty Ltd. v. Sprowles*, (2001) 52 NSWLR 705.

knowledge”; so far as the opinion is based on facts “observed” by the expert, they must be identified and admissibly proved by the expert, and so far as the opinion is based on “assumed” or “accepted” facts, they must be identified and proved in some other way; it must be established that the facts on which the opinion is based form a proper foundation for it; and the opinion of an expert requires demonstration of examination of the scientific or other intellectual basis of the conclusions reached: that is, the expert’s evidence must explain how the field of “specialized knowledge” in which the witness is expert by reason of “training study or experience”, and on which the opinion is “wholly or substantially based”, applies to the facts assumed or observed so as to produce the opinion propounded. If all these matters are not made explicit, it is not possible to be sure whether the opinion is based wholly or substantially on the expert’s specialized knowledge”⁷⁰⁹.

These principles were later considered in Australia as principles for evaluating scientific evidences. Later, in *Dura (Aust) Constructions Pty Ltd v. Hue Boutique*⁷¹⁰ there is little difference in admissibility as propounded by Dixon.j

Is the opinion relevant, has the witness properly based specialized knowledge, is the opinion to be propounded wholly or substantially based specialized knowledge, is the opinion to be propounded wholly

⁷⁰⁹ Makita (Australia) Pty Ltd. v. Sprowles, at Para 85

⁷¹⁰ *Dura (Aust) Constructions Pty Ltd v. Hue Boutique*, [2012] VSC 99.

or substantially based on facts assumed or observed that have been or will be proved or more specifically

Courts in other Australian jurisdictions have not commented on Dixon J's proposed test for admissibility under s 79.

7.4.2. SCOTLAND

When the need for DNA technology arose, changes were brought in the criminal procedure Act of Scotland, to make the process of DNA collection less cumbersome Section 55 of the Criminal Procedure (Scotland) Act 1995¹²³ amended to remove the requirement to obtain authorization from an inspector before a police constable can exercise compulsory powers to take a DNA sample by mouth swab, without force. Amendments to section 19 provide circumstances where a constable could use reasonable force while obtaining samples.

Section 19 of Criminal Procedure Act, 1995 makes it possible for the police to use certain samples and prints taken with consent in the investigation of an offence or a crime. This places the legislative foundation on the present procedure in which the police take samples or prints with permission and search against them. It also provides the police with the authority to hold the samples and prints for use in subsequent cases.

7.4.3. CANADA

Traditionally Canadian Courts were taken the view that expert evidence was admissible if it assist the court in reaching a decision on matters which are outside the knowledge of jury. Later in *R v. J*⁷¹¹, Bennie j noted that expert evidence is subject to *Daubert v. Merell Dow Pharmaceuticals*⁷¹² which would cover

1. Whether the theory or technique can be and has been tested
2. Whether the theory or technique has been subjected to peer review and publication;
3. The known or potential rate of error or the existence of standards; and
4. Whether the theory or technique used has been generally accepted.

In Canada DNA identification Act, was passed in 2000 which allowed development of DNA data base and alteration of the Criminal Code. The act gave the judges authority to compel convict to have blood, hair etc. and the samples so collected were added to the bank. The national Data Bank acts in accordance with the rules of the Act and ensures protection of the privacy. However the samples can be obtained for legal purposes only.

The act also provides for setting up of a National Forensic Science Committee to make recommendations for the Attorney General for proper use and distribution of DNA results, it also provides for quality, secrecy and

⁷¹¹ R v. J, (2000) 2 SCR 600.

⁷¹² Daubert v. Merell Dow Pharmaceuticals, 509 US 579 (1993).

confidentiality of the collected DNA. In the Act, there is also provision for prompt exclusion and destruction of out-dated and faulty DNA and to ensure a privacy of the individuals.

7.4.4. INDIA

To understand, the position of scientific evidence in the Indian criminal justice system, one needs to closely examine the Indian evidence act. Expert evidence is dealt with, under Ss. 45 - 51 of the Indian evidence Act. As per the Act an expert is a person with high knowledge and skill in a particular field of study. Though the definition is limited to subjects mentioned in the statute but today Court widened the scope of experts and included forensic experts also. Under section 45 expert opinion is closely connected with competency⁷¹³. The question whether a particular person is a competent witness or not is to be proved before the court of law through his testimony. Indian courts consider competency of expert rather than scientific theorems and principles. However section 51 approves the relevancy of the grounds of an expert's opinion. Apart from this, there is no rule that guides the trial judge in determining the reliability and admissibility of expert evidence.

Hon'ble Justice H.L. Dattu in *Ramesh Chandra Agarwal v. Regency Hospital Ltd. & Ors*⁷¹⁴, held that that the expert opinion forms an important role in arriving at conclusion. "The first and foremost requirement for an expert

⁷¹³: Naveen Krishna Bothireddy v. State Of Telangana And Another, Criminal Revision Case 2346/2016 decided on 20.01.2017 by the Anthra High Court.

⁷¹⁴: Ramesh Chandra Agarwal v. Regency Hospital Ltd. & Ors (2009) 9 SCC 789

evidence is that it is necessary to hear the expert evidence. The test to determine need of expert is whether the matter is outside the knowledge and experience of a lay person. The other requirements for the admissibility are he must be within a recognized field for expert, evidence must be based on reliable principles, and the expert must be qualified in that discipline”.

The expert also shall be examined as Court witness and opportunity also shall be given to both sides to cross-examine the expert, if they so desired⁷¹⁵. Relevance, reliability and admissibility are the basic principles guiding the admissibility of scientific expert testimony in a criminal trial. While deciding admissibility the trial Judge must look into whether the evidence is relevant to the fact issue. The major problem in India with regard to scientific evidence is that Indian Evidence Act, 1872 is silent about standards to be followed by trial judge while evaluating the scientific evidences. Indian courts were reluctant to admit a particular piece of scientific evidence independently without a proper supporting piece of other evidence⁷¹⁶ and in awarding conviction on the basis of the sole forensic scientific expert testimony. *Magan Bhiarilal v. State of Punjab*⁷¹⁷, Supreme Court struck down and set aside the conviction confirmed by the Punjab and Haryana High Court on the basis of uncorroborated testimony of the handwriting expert. Supreme Court observed: “It is well settled that expert opinion must always be received with great caution. In plethora of cases judiciary held that it is unsafe to base a conviction solely on

⁷¹⁵ G. Govindaraj v. Smt. Saroja Ramakrishnan S.A 1005/2007 of Madras High Court decided on 12.03.2013.

⁷¹⁶ State of Himachal Pradesh v. Jai Lal, AIR 1999 SC3318.

⁷¹⁷ Magan Bhiarilal v. State of Punjab, AIR 1977 SC 1091.

expert opinion without substantial corroboration⁷¹⁸. This rule has been universally acted upon and it has almost become a rule of law. It was held by the Supreme Court in *Forest Range Officer v. P. Mohhamad Ali*⁷¹⁹ though expert evidence assist the Court in reaching a particular conclusion when technical assistance is necessary and it has probative value but law is well settled that expert evidence needs corroboration even though nowhere does the Indian Evidence Act says that corroboration is *sine qua non* for the same but the Courts have developed this rule to ensure that the judgment is free from any collusion. Scientific experts are playing vital role to help the court to reach a logical and well defined conclusion. Various recommendations were made by Malimath Committee for inclusion of scientific evidences in Criminal investigation. But there exist some ambiguities with regard to scientific evidences now.

7.5. CONCLUSION

Indian evidence Act is limited the term experts to limited areas. There is no specific subject matter provided in UK and USA for expert testimony. Judiciary has given full discretion in choosing the areas. The major problem in India with regard to scientific evidence is that Indian Evidence Act, 1872 is silent about standards to be followed by trial judge while evaluating g the scientific evidences. Indian courts were reluctant to admit a particular piece of scientific evidence independently without a proper supporting piece of other

⁷¹⁸. Ram Chandra v. State of U.P, AIR 1957 SC 381.

⁷¹⁹. Forest Range Officer v. P. Mohhamad Ali, 1993 (1) KLT 886 (SC).

evidence in awarding conviction on the basis of the sole scientific expert testimony.

In UK, the admissibility of scientific evidence depends upon the “Helpfulness” to the facts of the case⁷²⁰. As per this test, if the report or opinion is helpful, then regardless of whether its theory or technique that forms the basis of testimony is reliable or relevant, when the scientific community accepts it”. The court has to closely examine whether the expert opinion has been correctly reached based on the admissibility standard as laid down under law. U.S.A a special rule for admissibility of scientific evidence was enacted in 1923 as a result of the landmark judgment of *Fyre v. United States*⁷²¹ and in *Daubert v. Merrell Dow Pharmaceuticals*⁷²² scientific test must pass some test before it can be admitted as evidence for a trial. But Indian Evidence Act does not envisage any standards or principles to be followed by trial judge while determining admissibility of scientific evidence.

From the above discussion it is clear that there exist an ambiguity in the law relating to admissibility of standards of scientific expert evidence in India. The trial judges are finding it difficult to assess the reliability of the technique that is associated with the scientific evidence. Hence comprehensive law should be brought to regulate the scientific expert evidence and its admissibility in trials.

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⁷²⁰. V.R. Dinakar, *Evaluating Scientific Evidence: A precedential Overview* CULR, 227 (2010)

⁷²¹. *Fyre v. United States*, 293F.1013(D.C. cir 1923)

⁷²². *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).

CHAPTER VIII

CONCLUSIONS AND SUGGESTIONS

“We are about to pass to the next face, described as gentle engineering, this comprises various methods by which it may be possible to alter or to determine the genetic structure of human being so as to eliminate or add certain characteristics. These developments may profoundly affect the traditional bases of moral and legal responsibility”.

- W. Friedman

CONCLUSION

Civilization has prescribed hall marks and bench marks which are reflected in a big way when dealing with crimes and criminals. Society recognizes values and standards and demands the state to ensure compliance. The Constitution and the laws create the medium for the adherence to the standards. The organs of the state invent, innovate and implement the constitutional imperatives. In the matter of investigation of offences this is done through law, science and technology. Investigation is the core of criminal justice administration and adherence to science and technology makes investigation fool proof, predictable, and verifiable. It gives transparency to the criminal justice administration. This study did a reality check focusing largely on the Indian scenario, taking clues from the major common law jurisdictions.

When India's conviction rates (40% - 45%) are examined with the conviction rates of other nations like USA, UK, Australia and Germany, which have almost 80 % - 90 % conviction rate, it indicates that "something is wrong somewhere in our criminal justice delivery system". With the change of technology and the fast pace of development in the pattern of commission of different natures of crimes, the criminals have not only gone high-tech in the commission of the offences but in many cases also it is often noticed that the technically educated criminals are much ahead of the police officers. The advancements in technology have heavily improved the modus operandi of criminals. Combating such advanced methods of crime demands equally modern methods of investigation.

The ultimate sufferers of the weak and defective investigations are not only the victims of the offence or their dependents but the society as a whole. The ultimate forum is the court but the court requires valuable inputs from the ancillary and auxiliary forces and sources like investigation, prosecution, and defence for administering justice with credibility. Society looks to the system as a whole and expects an impeccable performance. Justice with the courts is considered as safe as a deposit in the Bank of England.

The rate of crimes, the magnitude of the specific offences, and the high frequency of grave offences with the invention of mobile phones, internet and computers, show the great extent to which the crimes are increasing. The demand for scientific criminal investigation has increased day by day due to many factors like societal change, increased technical knowledge, the widening

field activities of the criminals, and the witnesses turning hostile. The advancement in science and technology has led to the investigators depending upon various scientific methods for conducting investigation with the help of material objects properly collected and analysed from the crime scene. Scientific investigation intends to determine what happened, how it happened, when it happened, and who the real culprit is. Law and the principles of all the branches of science including physics, chemistry, biology, engineering, and cyber forensics form the basis of scientific investigation. Hence the application of science in criminal investigation has marked the beginning of a new era in method of investigation.

In the present technological era the criminals hardly leave any trace of evidence at the crime site or otherwise. While on the contrary the law enforcement agencies are still glued on to the obsolete techniques for investigation. Third degree torture methods to detect crimes have resulted in custodial violence and deaths thereby leading to violation of human rights. Sophisticated method of commission of crime has ultimately resulted in the undetection of crime and further increased crime rates which results in failure of criminal justice system. It was aptly remarked in this context by the Hon'ble Supreme Court in Ajaml Kazab case as: "We must not forget that the object of criminal law process is to find out the truth and not to shield the accused from the consequences of his wrongdoing".

Through this research, researcher analysed the problem whether current legislation in India dealing with the investigation is sufficient to keep pace with

modus operandi of criminals. Researcher has also analysed whether Modern methods of investigation like DNA, Narco Analysis, polygraph and brain mapping used by investigating agencies are violative of Article 21 and 20(3) of the constitution.

Chapter 1 of this research set out a broad framework based on a general discussion of this topic and outlines the problem, objective and hypothesis of research work.

As a pilot study in Chapter 2, the researcher unveiled the role of each organ in the criminal justice system and focused this study into the role of Police, prosecution and Judiciary. The study has revealed that major problems faced by the criminal justice administration in India are low rate of conviction which is mainly due to the inefficient investigation and proof beyond reasonable doubt⁷²³. The other problem faced by criminal justice administration is huge pendency of criminal cases which has been with us since long time. This study found that the three agencies are equally responsible for the failure of criminal justice in India. For the purpose of effective and lawful investigation police should be occupied with technical police skills, including scientific methods for investigation⁷²⁴. Investigation of a criminal case will be rendered fruitless, if the prosecution agency is inefficient or incompetent and failed to link evidence collected with the accused⁷²⁵. This is study revealed that though in an adversarial system judges are mere spectators but their duty shall

⁷²³ *Supra* p48-53.

⁷²⁴ *Supra* p31.

⁷²⁵ *Supra* p37.

not restricted as observers, they should actively participate in the trial and to elicit all necessary materials for reaching the correct conclusion. The success of criminal justice system depends mainly on effective investigation, well qualified, trained, fair and dedicated prosecutors and impartial and independent judges⁷²⁶.

This study focused into the conventional system of criminal investigation vide Chapter 3, dealing with Criminal investigation in India –An overview. This chapter provides an overview of Criminal Investigation in India in conventional crimes. In this chapter an attempt has been made to analyse how lack of scientific knowledge leads to inefficient investigation, the problems of conventional investigative methods and what are the desirable changes in the criminal investigation. This chapter unravelled the mysteries in the conventional criminal investigation system and pinpointed how deficiency in the scientific knowledge of the investigators left most of the crimes undetected thereby inflating the criminality rate. This study introspected and pooled out that the factors which influenced the low rate of conviction of criminals which can be summarized as the work load, Inadequate training, lack of scientific knowledge and, Political influence etc⁷²⁷. In Plethora of cases, Hon'ble Apex Court has pointed out the need of scientific investigation by investigating agency and deprecated the practice of failure on the part of investigating agencies in collecting relevant evidence resulting in the acquittal of accused due to inefficient and untrained investigating officers, who take the

⁷²⁶ *Supra* p61.

⁷²⁷ *Supra* p87-88.

investigation in a very casual, careless and traditional manner. In *Dharamdeo v. State of Rajasthan* Supreme Court also held that lack of expertise and sustained effort in investigation and known utilization of scientific method of investigation is result in low rate of conviction and even implication of innocent accused person.

During this research work it is understood that as far as investigation is concerned, Code of Criminal Procedure, 1973 and Indian Evidence Act, 1872 are the parent procedural laws which govern criminal trials. But the Code of Criminal Procedure is silent about the procedure of crime scene investigation and collection of physical evidences. If we analyse the definition of investigation it is clear that it includes all procedure for collection of done by police officer or any person authorized by the Magistrate. Section 156 provides wider powers to police officers and today criminal investigation has got wide criticism because serious miscarriage of justice occurs while collecting physical evidences. As there is no specific legislation about the collection of evidences and crime scene investigation, the investigating officers, lawyers, prosecutors and even judges are totally ignorant of crime scene procedures. Hence there should be an Investigation Procedure Code which would codify all the existing provisions of investigation, Manuals, Standard operating procedures circular etc. with regard to crime investigation should be established⁷²⁸. Analysis of crime scene investigation in developed countries revealed that Crime scene investigations are done by crime scene investigators

⁷²⁸ *Supra* p106.

agencies which are separate from the law and order wing and they have proved that their separate investigative agencies are successful to investigate the crimes of modern nature. Decisions of our Apex Courts and various committee reports also mandate for establishment of separate Crime scene Investigating agencies In the light of above discussion I also recommend for Separate Investigation agency⁷²⁹.

The study allotted a specific chapter to assess the importance of forensic Science in criminal investigation vis-à-vis Chapter 4 “criminal investigation every contact leaves a trace” which give an in depth study into the web of criminal investigation that in “every crime there leaves a mark or trace of evidence for criminal investigation” Forensic science is amalgamation of different areas of science. It is based on the simple and logical observation that a ‘crime scene is a gold mine of evidence which is a joint effort of law enforcement officers, forensic experts, and medical personnel for collection of evidence and to sort out the events surrounding occurrence of a crime. Crime scene investigation starts with the collection of physical evidence which may be living or non-living. Systematic procedures from crime scene to forensic lab consist of Protection, Collection, Identification, Preservation Transmission and disposition of physical evidences. It needs a high level of accuracy and precision because if there is even any minor error, the result may be wrong.

Indian judiciary has adopted judicial activism in the field of admissibility and evidentiary value of forensic science in the administration of

⁷²⁹ *Supra* p98.

justice. Hon'ble Supreme Court in number of cases held that scientific investigations bring credible evidence and one of the well-known causes for the failure of a large number of prosecution cases is the poor, faulty and unscientific investigation. State of *Gujarat v. Kishanabai* is a land mark judgement in area of scientific investigation where Hon'ble court given direction to Home Department of every State, to examine all orders of acquittal and to record reasons for the failure of each prosecution case . This study also disclosed that Forensic laboratories also play vital role in decision making process but at the same they face lot of problems⁷³⁰. On an analysis it is evident that there should be mandatory certification of Forensic professionals and every Forensic Laboratory should be accredited by National Accreditation Board⁷³¹ Forensic department is not an independent body, it works under the Ministry of Home affairs. Hence there is chance for pressure and influence from all sources and can't work independently. These problems can be overcome if Forensic Laboratories Act is established⁷³².

Hence from the foregoing chapters this study found out the loopholes in the conventional criminal investigation techniques and hence researcher focused this study into the scientific technologies in the Core investigation with special reference to DNA Evidence. The study gave an insight that DNA evidence is now a predominant forensic technique for identifying criminals when biological evidences are left at the crime scene. Among the many new

⁷³⁰ *Supra* p177.

⁷³¹ *Supra* p180.

⁷³² *Supra* p183.

tools that science has provided for the analysis of forensic evidence DNA is the most powerful tool of investigation as DNA evidence can solve particularly difficult cases when all the investigative techniques failed. The relevancy of DNA evidence is that DNA of every individual is same except identical twins, it does not change with age, can be extracted from any body cells of individual, can be collected from blood stains, semen stains and even from ashes. From this it is understood small amount of sample is enough for DNA analysis. It has become established that DNA evidence can solve particularly difficult cases, when all the investigative techniques failed. From the study of DNA evidence it has seen that DNA techniques provide clues to the investigative agencies when there is no witness to crime.

Cases like *Sushil Sharma v. State of N.C.T. Delhi* shows that DNA evidence plays an important role in identifying person even from charred body that is beyond the stage of recognition and hence it becomes crucial in deciding the guilt of the accused. *Daramdeo v. state of U.P* is a land mark judgement in the area of scientific investigation where court has emphasized the necessity to strength forensic science for crime detection. In India till now, there is no specific DNA legislation to regulate the collection of biological sample for DNA analysis; hence its constitutionality is always questioned before the judiciary. On analysis of various provisions of the constitutions and some legislation it has seen that Parliament is competent to undertake legislations which encourage various technological and scientific methods to detect crimes speed up investigation.

The introduction of the DNA technology has posed serious challenges to some legal and fundamental rights of an individual such as “Right to privacy”, “Right against Self-incrimination”. And this is the most important reason why courts sometimes are reluctant to accept the evidence based on DNA technology

Right to privacy though not guaranteed by the constitution, Supreme Court recognized the right and read it in the ambit of Art 21 of the constitution. Though it is a guaranteed right under Article 21 of the Constitution it can be infringed in compelling public interest or if there is any procedure established by law. Right to privacy has become the most important human right issues of modern age, as it include right to control access to personal information about oneself, which is the crux of collection of DNA samples. It encompasses the control of dissemination of personal information

The idea behind the protection against self-incrimination is to encourage a free atmosphere in which the accused can be persuaded to come forward to furnish evidence in courts and be of substantial help in elucidating the truth in a case, with reference to material within their knowledge and in their possession. Mere questioning of a person in police custody and he is giving a voluntary statement which might ultimately turn to be incriminatory not a compulsion. In plethora of cases our apex Court held that collections of fingerprint, handwriting, thumb impression etc for the purpose of investigation are not violative of right against self-incrimination. Analysis of various decisions Supreme Court and s High Courts ruled that taking of biological samples from

the accused for DNA analysis under Section 53 of the Criminal Procedure Code, 1973 does not face the constitutional hurdles under Article 20(3) and Article 21 of the Indian Constitution⁷³³.

The scope of section 53 Cr P C was expanded in 2005 by the Code of criminal procedure (Amendment) Act, 2005 to include the examination of blood, blood stains, semen, swabs in case of sexual offence, sputum and sweat, hair samples and finger nail clippings, by the use of modern and scientific technique including DNA profiling .

Though it is considered as perfect science, but DNA experts are not considered as expert under section 45 of Indian Evidence Act, hence an amendment should be brought under section 45 with inclusion of DNA Expert⁷³⁴. Even in 1989 Kerala High Court in *Kunjiraman v. Manoj* held that section 45 of the Indian Evidence Act, evidence given by DNA expert is admissible just like opinion of a chemical analyst or fingerprint expert, Sec.45 does not expressly say about the opinion of DNA expert as an expert opinion. The pertinent question is whether opinion given by DNA expert can be included under section 45 of Indian Evidence Act or whether the term Science covers DNA test which requires special study or experience necessary to the formation of an opinion.

In *Kunjiraman v. Manoj* the Kerala High Court reached the conclusion that that as per section 45 of the Indian Evidence Act, evidence given by DNA

⁷³³ *Supra* p212.

⁷³⁴ *Supra* p217.

expert is admissible just like opinion of a chemical analyst or fingerprint expert. The same view was also upheld in *Santhosh Kumar Singh v. State through CBI* where the Apex Court held that DNA evidence was scientifically accurate and there was no doubt that DNA Fingerprinting is an exact science.

From the above decisions it is clear that even though DNA evidence is not considered strictly as an expert evidence under Indian Evidence Act, it is left to the discretion of judges to decide whether DNA test to be accepted or, not. An important problem in use of DNA as evidence is whether the detection methods are scientifically valid. Samples can also be contaminated with unknown genetic material such as bacteria, plant or animal secretion. The second aspect of DNA testing of forensic sample is reliability. Reliability involves several factors, including the procedure used, laboratory performance, laboratory record keeping quality control and quality insurance. One of the major obstacles to widespread use of DNA testing in India is the non-availability of a comprehensive DNA Database and the enormous backlog of cases in laboratories. The DNA Technology (Use and Application) Bill of 2019 is pending before the Parliament is a positive step in this regard and the Bill directs the government, to establish a National DNA Data Bank and a DNA Profiling Board, and use the data for various specified forensic purposes. From the discussions it is revealed that need of the hour is the enactment of a

specific legislation in order to effectively use such evidences as valuable evidence in the justice delivery system⁷³⁵.

Chapter 6 of this study probed into the Emerging trends in criminal investigation. This chapter focuses on the application of modern methods of interrogation Narco analysis, polygraph and brain mapping. Whether these techniques are violative of constitutional rights guaranteed under Article 21 and 20 (3) of the Constitution is serious issue till now.

The main provision regarding crime investigation and trial in Indian Constitution is Article 20(3) which deals with privilege against self incrimination as the rules of evidence and principle of fair trial is restrictions imposed on investigating authorities from doing any form of compulsion either direct or indirect, physical mental or psychological in order to extract information. Right to privacy is considered as a fundamental right, as it is necessary to live a life with dignity. It has become the most important human right issues of modern age, as it include right to control access to personal information about oneself, which is the crux of collection of DNA samples. It encompasses the control of dissemination of personal information

Indian courts had taken a positive approach in matters of scientific investigations and in number of cases it was held that these are all valuable technique which would help the investigating agency to further investigate the crime when the investigating agency finds itself clueless and there are no other

⁷³⁵ *Supra* p235.

ways in the investigation. As investigation is the statutory right of investigating agency to find out truth they can use any methods except third degree. Hence these tests were held to be not violative of Article 20(3) and article 21 of Constitution⁷³⁶.

As like constitutionality, evidentiary values of these scientific have controversy till now. Generally no statement given to a police officer in the course of investigation is valid but it is subject to exception in case of section 27 of Indian Evidence Act which states that in the course of investigation if accused person gives any information and in pursuance of such information, any discovery is made, such information and discovery made as a result of information is admissible in court of law even though it may tend to incriminate the person giving the information. It is founded on the principle that, “if any fact is discovered and a search made on the strength of any information obtained from a prisoner such a discovery is guarantee that the information supplied by the prisoner is true”.

If scientific techniques are taken into consideration these are not at all illegal or unlawful. Once recovery is made with the help of scientific tools and techniques, prosecution can easily establish the close link between discovery of a material object and its use in the commission of an offence. Narco analysis test cannot be termed as self-incriminatory. These tests, in fact, only disclose the existence of knowledge about crime in the brain which can form an important base for further investigation leading to new evidences and clues.

⁷³⁶ *Supra* p292.

Though 2005 amendment expressly excludes these scientific tests but, this amendment is a protective and positive recognition of scientific investigation. By this amendment the legislature intended to include all modern and scientific methods for conducting investigation and it is a valuable technique which would help the Investigating agency to further investigate the crime when the Investigating Agency finds itself clueless and there are no other ways to proceed with the investigation. The constitutionality and evidentiary value of scientific evidences almost settled with the decision of Supreme Court in *Selvi v. State of Karnataka*. In this case Court has taken the view that, “compulsory administration of any of these techniques is an unjustified intrusion into the mental privacy of an individual. It would also amount to cruel, inhuman or degrading treatment with regard to the language of evolving international human rights norms”. But at the same time Court permit this test with the consent of accused person.

Supreme Court taken the view that these tests cannot be included under section 53 A because of the ejusdem generis application by taking into account necessity of investigation these technique should be made as part of investigation especially in case of habitual and hardened criminals and financial fraud terrorism cases etc and a separate amendment should be brought out in this section⁷³⁷.

⁷³⁷ *Supra* p287.

An amendment should also be made in Constitution light of this technological era where the crimes go undetected in the pretext of violation of compulsion to be a witness against himself and right to privacy⁷³⁸.

To draw up a perfect legal system with respect to criminal investigation techniques in India researcher allotted a space for researching on the Admissibility and evidentiary value of scientific investigation in common law Countries with special reference to USA and UK. The studies revealed that in today's world it becomes inevitable to use modern technology as a means of collecting scientific evidence to prove the case. However, a lot of questions have been raised regarding the nature of scientific evidences and the methods required for their collection as it will violate right to privacy.

Due to the technological revolution in the form of internet, social networks etc which make it difficult to maintain privacy right. But the sophisticated nature of crime and criminals today necessitated the need for scientific investigation and there by collection of DNA samples. In developed countries the advances in DNA technology has facilitated creation of databanks of Individuals. By comparing DNA samples in crime scene, victim, and the accused with that of samples stored in forensic lab highly satisfactory results can be obtained in criminal investigation.

In the United States, both the States and Federal government have authority to prosecute criminal offences. Each state has its own criminal

⁷³⁸ *Supra* p253.

statutes, Court systems, police agencies and prosecutors. The basis of criminal procedure is United States constitution, Bill of Rights and subsequent amendments. Evidence obtained in violation of the rules of criminal procedure is deemed by U.S. Supreme court to be unlawfully obtained evidence. Earlier scientific evidence had not been accepted by the courts. Scientific evidences have got serious attention after the landmark judgment in *Frye v. United States*, where the court held that in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the evidential force of the principle must be recognized in the scientific community as a reliable source of drawing conclusion". In 1975 Congress enacted Federal Rules of Evidence which embodies a more flexible general relevance test for admissibility of opinion testimony by expert witnesses not allowed by the Frye test. *Daubert v. Merrell Dow Pharmaceuticals*, was a landmark judgment that questioned whether Frye general acceptance test for admitting scientific evidences had been superseded by Rule 702 of Federal Rules of Evidence. After the analysis of detailed study of Frye and federal Rules of Evidence Court put 4 criteria in order to admit scientific evidences In this case Supreme Court of United States held that Federal Rules of Evidence Supersede Frye Standard. Court formulated a new standard relying on Federal Rules of Evidence. Court formulated that evidence must be classified as scientific and non-Scientific. Later, the Supreme Court of U.S. in *Kumho Tyre Co v. Charrmical* clarified that trial judge's duty to act as gatekeepers would apply to all forms of expert testimony. Through these decisions admissibility of scientific testimony were settled in U.S.A.

After the pronouncement of Daubert case, DNA technology is extensively used in USA not only for the purpose of proving the innocence of under trial persons in pending cases but also for exonerating those prisoners who were earlier convicted by conventional system of justice. Later, the Supreme Court of U.S. in *Kumho Tyre Co v. Charming* clarified that trial judge's duty to act as gatekeepers would apply to all forms of expert testimony. Through these decisions admissibility of scientific testimony were settled in U.S.A⁷³⁹.

In 1994 DNA Identification Act was passed, which authorized FBI to establish Combined DNA Index System (CODIS). National Index of DNA identification records of persons convicted of crimes, analyses DNA samples recovered from crime scene, and also analyses DNA samples recovered from unidentified human remains. CODIS is a computer software program that operate, local, state and national database of DNA profiles from convicted offenders, unsolved crime scene evidences, and missing persons. In USA legislations were introduced in tune Science and Technology in the Federal and State level and its admissibility was also settled by the judiciary.

The application of scientific evidence in USA is evident from the number of Acts that have been passed or amended in order to include scientific evidences in investigation and derive its benefits. But the use of scientific techniques of investigation are not focused only on raising the conviction rate;

⁷³⁹ *Supra* p310.

on the other hand the techniques have been imbibed in the system to serve justice.

The process of criminal investigation in Great Britain has essentially codified by two statutes, Police and Criminal Evidence Act of 1984, and Criminal Procedures and Investigations Act of 1996. The United Kingdom has been in the fore front of the DNA Technology, ever since Professor Alec Jeffreys of the University of Leicester stumbled on a way of establishing a human's genetic identification, also known as "DNA Fingerprinting" The Criminal Justice and Public Order Act (CJPOA) mandated establishment of the England and Wales National DNA Database (NDNAD), currently the world's largest forensic database. United Kingdom's success in establishing a system of DNA Fingerprinting wasn't only limited to creating the database. But appropriate changes were made to relevant statutes to maximize efficacy of DNA Fingerprinting on Law enforcement.

Earlier the position in England was in order to admit particular scientific evidence it must be helpful to trier of the facts. If it is helpful then it is admissible regardless of whether its theory or technique that forms the basis of testimony is reliable or the relevant scientific community accepts it. In England no general test has been explicitly stated as in American Courts, but the evidence is helpful or not will be determined by trial court judges according to his subjective satisfaction after considering the nature of evidence produced.

The court can decide the validity of experts and not necessary that he must formally qualified⁷⁴⁰.

In almost developed countries they have a national DNA database. So that when a crime is committed, the samples can be compared to the database. And it's easy for them to identify the accused. There is a database for every citizen.

Hence from the foregoing studies researcher traced the various methods of scientific investigation technique and drew out my suggestions with respects to the defects and loopholes identified.

SUGGESTIONS

The study lead the researcher to arrive at the following suggestions to the policy makers of the state as well as the public to follow in order to curb the issues pertaining to the conventional method of crime investigation. The entire suggestions can be divided into two.

- Primary Suggestions
- Secondary Suggestions.

Primary suggestions are addressed the core issues of the study whereas secondary suggestions are designed for the effective functioning and implementation of primary suggestions.

⁷⁴⁰ *Supra* p328.

PRIMARY SUGGESTIONS

I. INVESTIGATIVE PROCEDURE CODE.

Code of criminal procedure is the main legislation dealing with the procedure of criminal investigation in conventional crimes. In statutory offences investigation is dealt by special statute subject to non obstante clause. Section 2(h) of the Code of Criminal Procedure defines investigation includes all the procedure under the Code for collection of evidence done by police officer or any person authorized by magistrate. Section 156 to 173 of Cr P C dealt with procedures to be followed in criminal investigation, but the act is inadequate about crime scene investigation process. Hence the police officers, prosecutors, lawyers and even judges are not aware of the crime scene investigation process. During the course of trial, due to the lack of awareness there will be no questions about the crime scene investigation to investigating officers either from the prosecution or from the defence lawyers except traditional questions which are common to all criminal trial. Investigation procedure code is the legislation which codifies all the existing provisions of investigation including Cr P C, Police Act, standard operating procedures, circulars, Police Manuals and others which are specifically dealt with crime scene investigation. By enacting an Investigative Procedure Code, the law men, lay men and all those who are entrusted with the task of crime investigation will be well acquainted with the procedure of investigation which in turn adds efficiency and transparency to the administration of criminal justice system.

Under this code the following should be specifically provided

- The categories of crimes in which scientific investigation is mandatory
- The team of experts to assist at the time of scientific investigation
- Investigation kit
- Crime scene management
- Collection of physical evidences,
- Chain of custody
- Packing and dispatching of samples (in brief all procedures from crime scene to forensic lab)

II. FORENSIC LABORATORIES ACT

The rapid increase of science and technologies has led the investigators to depend upon various scientific methods for conducting investigation with the help of material objects properly collected and analysed from the crime scene. As like collection of evidence, its analysis is also important in crime scene investigation. Forensic science plays an important role in the criminal justice system, especially in the laboratory investigation by examining physical evidences scientifically. Proof of guilt or innocence is frequently determined by the results of forensic evidence analysis. The most important problem faced by forensic laboratories is delay in obtaining results. Sometimes investigative reports are submitting without obtaining forensic result. The delay from experts to reach the crime scene will affect the purity of sample or tampering of evidences Forensic department is not an independent body, it works under the Ministry of Home affairs. Hence there is chance for pressure and influence

from all sources and cannot work independently. It depend Police department for financial assistance and infrastructure. What is indeed then is Forensic Laboratories Act. The object of enacting a Forensic Laboratories Act is to provide for the establishment and regulation of forensic science laboratories in India and to provide a uniform standard of procedure in assisting scientific investigation. It should also contain provisions relating to the procedure to be followed when receiving a sample, time limitation of giving results, conservation of samples in laboratories, its functioning, responsibilities, accountability, the mode of giving results and procedure for disposing the materials. Penal sanction is to be introduced whereby any officer tampers with the process of forensic Analysis. Under this, a Regulatory board is to be set up. All forensic laboratories are to be brought under this board. The advantage of this act is that, depending on the facts and circumstances of the case, the Board can decide what all available modern methodologies are to be adopted in the investigation of the case As it is under the Ministry there is a chance that there will be pressure from prosecutors as well as from police officers. This issue will be resolved by the Independent Regulatory Board, under Forensic Laboratories Act. All forensic laboratories are to be brought under this board. As far as the constitution of the Regulatory Board is concerned, experts from different fields should act as members. By the enactment of Forensic Science Laboratories Act the entire system of forensic laboratories can be brought under one statute thereby the question of validity and veracity of the result can be resolved which in turn increase the efficiency of crime investigation and

finally lead to the success of prosecution. Therefore, it is high time to regulate the functioning and establishment of forensic laboratories otherwise the scientific mode of crime investigation cannot be carried out properly. At present, even though there are number of forensic science laboratories at central, state and regional levels there is no legislation or statutory back up for the establishment and functioning of forensic science laboratories. As a consequence of which the functioning of forensic laboratories in India are subject to severe criticism which will adversely affect the admissibility of evidence before the court of law.

III. SEPARATE CRIME SCENE INVESTIGATION WING

Collection of evidence is very crucial in crime scene investigation. The first person who reaches the crime scene is usually a constable who is not highly experienced in maintaining sanctity of crime scene. When a crime is reported the Station House officer appoints some Constables in the police Station immediately to the crime scene. The educational qualifications of most of the constables are matriculation and a few may have higher qualification. It is understood that all works including recording of FIR, preparation of scene mahazars, interviewing of witnesses etc. are done by Head Constables and the Sub Inspectors later endorse them. The judiciary had in several acquittal judgments pointed out these defects but no one seems to be seriously concerned about such observations. The reports prepared by these persons are scrutinized by prosecutor, judges and defense counsels and so on to arrive at conclusions. So no wonder more and more cases end in acquittals. Every police station has

station writers and the rule is that a constable in order to be able to function as station writer should pass an examination in writer course but a sad thing is that a good number of them have not undergone station writer's course. As investigation is a highly technical and sensitive job but ill equipped investigating officers make it to a deplorable state of affairs. He must be thorough with the crime scene investigation and should maintain proper chain of custody. If there is any mistake all evidences becomes inadmissible. In certain cases they are ill equipped to ask the relevant questions to victim, especially in case of sexual assault. Due to lack of knowledge about the crime scene inspection, in most of the cases evidentiary value of this evidence become inadmissible when the investigating officer is cross examined during the course of trial. In this back ground, the analysis of the current situation in the developed countries such as USA and UK are relevant. In developed countries crime scene investigations are done by crime scene investigators agencies which are separate from the law and order wing and they have proved that their separate investigative agencies are successful to investigate the crimes of modern nature. Various committees were appointed to study reformations of police reforms and the most important recommendations made by each committee were separation of investigating agency from law and order wing. Separate investigative wing means the investigative wing of the police should be separate from Law and order wing and function of maintenance of law and order. This separate investigative wing should be exclusively used and empowered with the task of detecting and investigating crimes so that the

challenges faced by the police in crime investigation can be cured. These officials in the separate investigating wing should be well acquainted with law, science, psychology, forensics and medicine. Whenever a crime is detected or informed in a police station, the station house officer shall after recording the same hand over the matter to this investigative wing so that the entire investigation of crime starting from proceeding to the scene of occurrence can be done by these experts. Since they are not entrusted with the task of maintenance of law and order and such other functions which local police have to do in their ordinary course of duty, these investigative wing can perform their task of investigation more expeditiously, efficiently, and accurately by using techniques and tools of investigation keeping in pace with the changing needs and circumstance of the society.

IV. AMENDMENT TO PART III OF THE CONSTITUTION OF INDIA

1. Article 20(3) should be amended - Protection in respect of conviction of offence.

No one shall be compelled to give evidence against himself is the gist of Article 20 (3). It is a single lined Article which is always subjected to different ambit of interpretation by the judiciary. Here, the question arises as whether a person compelled to give evidence against himself or not. This question usually came up before the court in the context where investigative agencies demanded a person to give his bodily sample, or in techniques such as narco analysis, polygraph, brain mapping, DNA profiling etc. The answer to this question is always depends upon the philosophy and logical reasoning of the judge which

always adversely affect the investigation as well as the prosecution. Sophisticated crimes and criminals are on an alarming rate leaving no trace of the commission. This is a serious setback faced by the investigative agencies. Hence the provision under Article 20(3) is stale and needs to be revamped in the light of this technological era where the crimes go undetected in the pretext of violation of compulsion to be a witness against himself.

Hence it is necessitated that an amendment be carried in Article 20 (3) of the constitution and it **should redefine that “No one shall be compelled to give evidence against himself except under the following circumstances; (1) Giving or taking bodily samples of the accused for crime investigation; (2) conducting scientific test for investigation such as DNA Profiling, Narco analysis, Polygraph, Brain mapping and such other test strictly according to the due process of law”**. An amendment to the constitution in the above stated manner will not only encourage the efficiency of criminal justice system, but also lead to the avoidance of unwanted litigation in the High court and Supreme Court with regard to the challenge of the constitutionality of scientific techniques in the crime investigation.

2. Right to Privacy as a fundamental right - Redefining right to privacy.

It is an undisputed fact that, scientific investigative methods are necessary for the proper administration of criminal justice system. But whenever a scientific methods such as DNA profiling, Narco analysis, polygraph, lie detector, brain mapping, etc are used in crime investigation, the

question or challenge before the court is whether such technique amount to the violation of the right to privacy of the individual. Here, it is to be noted that, the right to privacy is recognized by the apex court through its various decisions. But it is not expressly provided under the constitution.

As it is not expressly provided under the constitution, the ambit and scope of right to privacy is depends upon the discretion of the higher judiciary. In that scenario, it is difficult to adopt scientific investigative methods because whenever such technique is used the person against whom such technique used generally approach the higher courts for getting an order prohibiting the same on account of violation of privacy. Hence if the criminal administration of justice to be even and not be defeated under the pretext of right to Privacy, The only solution to this problem is to define what is right to privacy and make it as a fundamental right in express provision under part III of the constitution by way of constitutional amendment, It should define what privacy is and extend of right to privacy along with its exceptions”. In other words, the constitution should be amended to expressly mention that all the citizen of India shall have the right to privacy subject to reasonable restrictions.. More precisely speaking, the constitution by way of an amendment should specifically state that **“Every citizen of India shall have the right to privacy and this right shall not be infringed or restricted except under the following circumstances; (1) For the purpose of crime investigation or for the administration of criminal justice system; (2) For the security of the state (3) in the interest of the sovereignty and integrity of India or Public order, decency or morality or**

friendly relation with other state. Right to privacy is not an absolute right”. By the insertion of this provision with reasonable restrictions including restriction on account of crime investigation will lead to avoid unnecessary challenges before the Apex courts about the constitutionality of scientific tools of investigation on the ground of privacy as the same is expressly provided under the constitution. Hence most of the crimes leave no room of undetection in the pretext of violation of the right to privacy.

V. AMENDMENT IN THE CODE OF CRIMINAL PROCEDURE

1. Corresponding amendments should be addressed to section 157 Cr P C (procedure of investigation) vis-à-vis investigation procedure law
2. Section 53(c) Cr P C Should be inserted in Code of Criminal Procedure in which medical examination include modern scientific techniques like Narco Analysis, Polygraph and Brain Mapping which the expert in this field thinks necessary in exceptional cases like hardened and habitual criminals, financial fraud and terrorism cases
3. Section 53(d) should also be inserted in Cr P C in which experts include higher level police personnel, forensic psychologist, forensic psychiatrist, and legal experts.
4. Section 293(4) Cr P C should be amended to include DNA experts and experts specified for doing narco analysis, polygraph and brain mapping).

VI. AMENDMENT WITH RESPECT TO INDIAN EVIDENCE ACT

1. Section 45 of Indian Evidence Act, 1872 also needs amendment to include admissibility of expert evidence in the light of modern scientific and technological developments.
2. An amendment should be carried out in Indian Evidence Act wherein it should be made mandatory with regard to the standards or principles to be followed by trial judge while determining admissibility of scientific evidence.

SECONDARY SUGGESTIONS

1. The DNA Technology (Use and Application) Regulation Bill, 2019) is pending before the Parliament; it is also subject to severe criticism because of Privacy matter. The defects and loopholes and the suggestions for the bill is also discussed in chapter 4. DNA profiling Bill with necessary changes to be implemented.
2. The main components of criminal justice system, that is, the police officers, the prosecutors and the judges, need to be provided training programmes in scientific technologies in investigation, how it can be evaluated, and how far it is relevant to the administration of justice.
3. There should be proper and special training to the investigative agencies in a better way so that they can enhance their investigative skills.
4. Prosecutors should work in cooperation and coordination with the police department for a speedy and efficient criminal prosecution.

5. Trained and qualified prosecutors shall be appointed and they should be responsible for implementing speedy justice to both the victim and the accused.
6. There shall be proper facilities for the packing and preservation of scientific evidences and to ensure protection against contamination, degradation or damage at police stations or in the district headquarters.

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