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Forensic science and victims: Indian scenario

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Abstract

Forensic Science plays a crucial role in administration of justice. Now a day crimes are committed using highly developed science and technology which creates intricacy to trace the origin of crime and criminals through traditional mode of investigation. In this context, Forensic Science acts as a catalyst for better investigation which aims at assisting the court of law in legal proceedings. Forensic Science assists in collecting better evidences and in finding out the truthfulness of the fact in order to prove the guilt of accused and to provide compensation to the victim in accordance with the victim compensation scheme.

Keywords: Administration of justice, compensation, forensic science, investigation, victim

Introduction

From ancient era till the modern era of science and technology, forensic science has been enlightening the path of administration of justice. Since the beginning of human civilisation, the rate of crime is increasing drastically day by day. With the development of science and technology, the methods of commission of crime by the criminals have undergone a phenomenal change as criminals are trying to evade themselves from being detected after the commission of crime. Undoubtedly, in these complex situations, it is much more difficult to trace out the origin of crime, method of commission of crime and criminals involved in that crime by using the traditional methods of investigations. In this context, the contribution of forensic science can not be underestimated in the art of investigation and in judicial proceedings in order to provide better justice to victims of a crime.

Meaning and Concept of Forensic Science

There are two different terms having their respective meanings viz. Forensic and Science. But on the other hand, if they are combined together, they forms an umbrella term i.e. 'Forensic Science'. The term 'Forensic' has been derived from the Latin word '*forensis*', which denotes to 'court of law'. And the term 'Science' has been derived from the Latin word '*scire*', which denotes 'to know'. The adjective is '*Scientia*' which denotes to 'knowledge'. Science is a systematic knowledge based on experimental observations for enquiry and investigations. Therefore, Forensic Science is that science, which is used in the court of law for proper administration of justice.

Forensic Science is the application of science in answering the questions that are of legal interest ^[1].

Forensic Science is the employment of techniques and tools to interpret crime scene evidences and use of that information in investigations ^[2].

The application of science and technology for the detection and investigation of crime and administration of justice is known as Forensic Science ^[3].

By analysing various definitions given by eminent experts, it can be concluded that, Forensic Science means science or technology or methodology, which is applied for proper identification and characterization of physical evidences found at crime scene for better solution of legal problems at the time of investigation as well as at the time of judicial proceedings.

In order to test the fruit of independence as well as development, interest of each person along with the interest of society must be protected. Various legislations and policies are also formulated in order to live with a dignified life. At first, the society must be free from any kind of criminal activities.

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To combat various criminal activities, the investigating agencies and judiciary must be equipped with modern scientific tools and techniques, because more developed technologies are being used in perpetration of crime. In the process of investigation, the investigating officers face many difficulties in collection of evidences due to lack of scientific knowledge and experiences. Similarly the judges seek assistance of an expert who has knowledge and experience in the field of science to admit the technical evidences produced before them. Therefore, in the field of administration of justice, application of science has a significant impact along with the application of law of land. Forensic Science is the science in pursuit of truth. The main aim is to find out the realities behind the crime. The real perpetrator of crime can be detected and punished accordingly. The innocence of some of the suspects can also be established. On the other hand, fair trial can also be conducted in order to safeguard the interests and rights of victim as guaranteed by law of land. And an innocent person will not face any kind of trouble in the process of administration of justice. For example, in a motor vehicle accident case, the whole fact and circumstances of the case can be observed from the recordings of CCTV footage. But in absence of CCTV, eye witnesses are required to take part during the course of investigation and proceedings.

Some fundamental principles have been recognised in forensic science. Locard's principle is at the foundation of what forensic scientists do: "Every contact leaves a trace". Clearly forensics and identity are inherently linked because the aim is typically to identify a person or persons, or link a person with criminal activities^[4]. According to 'Principle of exchange', when criminal or instrument used at crime scene come in contact with victim, mutual exchange of some particles takes place. 'Principle of Individuality' means every object in this world whether natural or artificial has it's individual character which can not be duplicated in any other object. The 'Law of Individuality' has a key role in indentifying a person, because no two fingerprints can have identical ridge characteristics in their relative positions unless and until they are produced by the same finger or same person. 'Law of Forensic Changes' means each and everything changes in due course of time, as a result of which in certain cases it is difficult to recognize the criminals as well as to collect evidences, if investigation is not done in time. The 'Law of Comparison' means only the likes can be compared, which necessitates the collection of samples and specimens in order to compare the samples or specimens with evidences collected from crime scene. The 'Law of analysis' requires proper collection and preservation of evidences for forensic test. The 'Principle of Probability' is of fundamental importance in forensic science as all experiments done or identifications made are based on theory of probability.

Origin and Development of Forensic Science in India

The origin of forensic science in India can be traced back to 4000 to 3000 B.C. Written records of that time are found which deal with law and medicine problems.

In Vedic period, various 'Shastras' and 'Smritis' were written. These acknowledge us about the existence of forensic science in ancient India. 'Manusmriti' informs us about many sex related offences with their examination and investigation under Indian law. Chapter VII of 'manusmriti' informs us about some directions which were given to

judges for application of forensic psychology while observing the accused. 'Kautilya's Arthashastra' which was written in about 2300 years ago informs about the existence of classification of method of murder and use of forensic science in various cases in ancient India.

Mr. K.M. Kata, a frequent contributor to 'Nature', stated that the Chinese records proved the use of finger prints as signature by people of southern India, which was known as 'Tarija'^[5]. But somehow the knowledge and application of forensic science was in a dormant position till middle of nineteenth century.

During nineteenth century many people died due to consumption of poisonous substances. As a result of which, in the year 1849, the first Chemical Examiners Laboratory was setup at than Madras presidency under the department of Health for the detection of various poisons. In due course of time forensic science has raised it's head with the establishment of organisations and laboratories.

After independence, the first Central Forensic Science Laboratory was established at Calcutta in the year 1957, in order to moderate the crime investigation methods. With this gradual development in the field of forensic science has been remarked.

Organisations and Laboratories

Keeping in view the growing rate of criminal activities, inconvenience in process of investigation and other factors, various organisations and forensic science laboratories are established to stimulate the process of administration of justice.

After the establishment of Chemical Examiners laboratory, for the purpose of keeping the record of known criminals, Anthropometric Bureau (1892), Finger Print Bureau (1897) was established in Calcutta. Departments of Explosives were established at Calcutta, Madras, Agra, Gwalior and Bombay. Foot Print section, Note forgery section and Ballistic Laboratory have been established under Criminal Investigation Department (C.I.D.), Bengal in the year 1915, 1917 and 1930 respectively. Govt. Examiner of questioned Document, Shimla was appointed in 1906. Serologist to Government of India was appointed in the year 1910 at Calcutta. Crime Record Bureaus are also established by the Government to keep the records of known criminals for future references.

Central Forensic Institute (CFI) at Calcutta, Indian Academy of Forensic Science (IAFS) in 1960, Central Detective Training School (CDTS) at Hyderabad (1964) and Chandigarh (1973), were established for the purpose of imparting training programmes. Institute of Criminology and Forensic Science was established in the year 1971 for purpose of providing training to in-service personnel. Besides these, now others Government laboratories are also functioning. Along with this, some Govt. Universities and Private Institutions are offering the forensic science courses. During the year 1959, the Union Government appointed two committees namely, Central Forensic Science Advisory Committee and Central Medico-legal Advisory Committee. The former is for the purpose of establishment of new laboratories and the development of existing one in various states. The latter is to advice the Central Government and State Government on matter relating to Medico-legal procedures and practices.

Forensic Science Laboratories are equipped with advanced technologies for forensic examinations conducted by

scientific experts working individually or in a team under certain conditions and controlled environment for obtaining proper results. Now four categories of Government Forensic Science Laboratories are working over the India to conduct various tests and examination of both physical as well as electronic evidences found in the crime scene. These are as under.

- a. Central Forensic Science Laboratory (C.F.S.L.),
- b. State Forensic Science Laboratory (S.F.S.L.),
- c. Regional Forensic Science Laboratory (R.F.S.L.) and
- d. District Forensic Science Laboratory (D.F.S.L.).

a. Central Forensic Science Laboratory (C.F.S.L.)

Now, four CFSLs have been established at New Delhi, Calcutta, Hyderabad and Chandigarh having Head Office at New Delhi, under the central ministry of Home Affairs and under the administrative control of Central Bureau of Investigation (C.B.I.).

The main functions of CFSLs are to analyse and examine the physical evidences received from different courts and to forward the examination reports to respective courts. Besides this, CFSLs provide Expert opinions in crime investigation and to provide assistance to State Forensic Science Laboratories, Central Government, State Governments, Government Undertakings, Banks etc in criminal cases.

b. State Forensic Science Laboratory (S.F.S.L.)

The main functions of SFSLs are to analyse and examine the physical evidences received from different courts and to forward the examination reports to respective courts. Besides this, SFSLs provide Expert opinions in crime investigation and to provide assistance to respective State Government, Government Undertakings etc in criminal cases.

c. Regional Forensic Science Laboratory (R.F.S.L.)

The main functions of RFSLS are to analyse and examine the physical evidences received from different courts and to forward the examination reports to respective courts.

d. District Forensic Science Laboratory (D.F.S.L.)

The main functions of Experts of DFSLs are to visit the crime scene for collection of physical evidences, to help the Investigating Officer in collecting, preserving and forwarding physical evidences and to conduct some preliminary examinations etc.

Divisions of Forensic Science Laboratories

Basically, Forensic Science Laboratory does its functions by comprising various divisions like, Physics Division, Ballistic Division, Chemistry Division, Toxicology Division, Biology Division, Serology Division, Lie Detection or forensic Psychology division, D.N.A. Unit etc. Technical Units of Crime Branch such as Finger Print Bureau, Hand Writing Bureau, Photo Bureau are also performing their respective functions.

Not only the Government laboratories, but also some private laboratories are being established. Other branches of forensic science, like Cyber Forensics, Forensic Entomology, Cell phone Forensics, Forensic Accounting and Fraud Examiner, etc are also have tremendous impact on investigation to new concept of crimes. The first private laboratory for D.N.A. test was established at Gurgaon.

Victims

When we analyse the term 'victim', various concepts on this term comes to our mind automatically. This term has a broader concept from different angles.

According to Black's law dictionary, 'victim' means, "a person harmed by crime, tort or otherwise."

According to Section 2(wa) of Code of Criminal Procedure, 1973, 'victim' means, a person who has suffered any loss or injury caused by reason of the act or omission for which the accused person has been charged and the expression 'victim' includes his or her guardian or legal heir.

The term 'crime victim' generally refers to any person, group of persons or entity who has suffered injury or loss due to illegal activities. The harm can be physical, psychological, or economic ^[6].

By analysing the above definitions, we can conclude that, 'victim' means, an entity, or a person or a group of persons, who has suffered any loss or injury whether physical or psychological, or whose fundamental or legal right has been violated due to any civil or criminal wrongs for which act or omission the wrong doer shall be liable under any law for the time being in force. Guardian or legal heirs of victim are also covered under the definition of victim.

Position of Victim in Administration of Justice

With the emergence of the concept of Public Interest Litigation, the concept in administration of justice has been changed. Previously administration of justice focused only on punishing and rehabilitating the accused. But now victims are also getting special attention and are provided with compensatory reliefs in the system of administration of justice.

Indian legislature has enacted certain substantive laws like Indian Penal Code, 1860 and Procedural laws like Code of Criminal Procedure, 1973, the Indian Evidence Act, 1872 to deal with problems of victims.

Indian Penal Code, 1860 provides the penal provisions towards accused. Section 1A of Fatal Accident Act, 1855, Section 5 of Motor Vehicle Act, 1988, section 5(1) of Probation of Offender Act, 1958 and Consumer Protection Act, 1986 provides provision as to compensatory reliefs for victim. Sections 24, 25, 34, 57, 357, 357A, 357B, 357C and 372 of Code of Criminal Procedure, 1973 deal with victim specifically. Among these, sections 357, 357A, 357B, 357C provide provision as to compensation towards victims.

The watch dog of Constitution i.e. judiciary has interpreted some provisions (viz. Articles 14, 15, 20, 21, 25, 32, 136, 142 and 226) of Constitution for providing compensation to victims and has delivered historic judgements. The hon'ble Supreme Court has germinated the seed of a new concept on compensation while delivering the judgement in the case of *Rudul Shah vs. State of Bihar* ^[7]. In this case, the hon'ble Supreme Court has opined that, "if any fundamental right of any person is violated, and no remedy is provided by the law, then the victim can be compensated in pecuniary form".

Relationship of Forensic Science with Victims

In order to establish the relationship between forensic science and victim in administration of justice, we can analyse the two important aspects viz. process of investigation and prosecution of criminals in judicial proceedings.

In case of availability of direct evidences, the whole case is relied upon the admissibility of direct evidences. But sometimes direct evidences are not available at scene of crime. In these situations circumstantial evidences are required to establish the case and to prove the guilt of accused beyond all reasonable doubt. At the stage of investigation the first thing is to trace out the crime, criminals involved in the crime and then to find out whether any crime has been committed by these criminals or not. And a victim is benefited only when the case goes in his or her favour. Now the role of forensic science comes out which can be concluded by observing various pros of forensic science.

The more accurate and complete the victim information provided, the clearer the context of the crime. In cases where victim actions, history or demeanour are relevant to legal proceedings, forensic examiners are asked to examine victim oriented behavioural evidences and contextualise it before the court. The rules of admissibility varies from state to state, court to court and judge to judge as the admissibility of victimology evidence is made by the court on an individual basis and based on a sometime unique interpretation of law. The forensic examiners' role here becomes the most important factor. They should provide a cooling effect to the after heated issues surrounding victim oriented behavioural evidences. They must examine the evidence impartially, through the lance of the scientific method and render conclusions related to victimology in accordance with their findings. When necessary they must be able to express their findings to the court and to show how they achieved them. In this way, we can give a proper justice to the victim by taking the help of forensic science.

Forensic science helps in determining the time and place of occurrence of crime. It helps in detecting the criminals by identifying the finger prints, foot prints found in crime scene. In death cases forensic science plays it's significant role in determining the nature of death (whether suicidal or homicidal), cause of death, time of death, nature of injuries (whether ante mortem or post mortem) found on body if any and in identifying the deceased form his or her remains i.e. skull, skeleton etc and in determining age, sex of deceased from skeletal remains. In sex related offences it helps tracing out the offender trough examination of blood stain, saliva, semen, hair fibre etc. It helps in analysing any accident cases so as to determine the cause of accident and to determine whether victim will be compensated or not. Motor vehicle accident and theft cases can also be analysed, so that a victim can also get insurance claim in case of need. Besides these, during course of investigation, using modern scientific technology various things can be done for collection of evidences, like identification of child abuse, defensive wounds, and other injuries on body, tracing out truthfulness though lie detection test, analysis of forgery and fraud cases, voice trapping, establishment of paternity by matching the D.N.A. of victim and it's parents, to trace out cyber crimes and computer related offences, examination of fire arms as defined in the Indian Arms Act, bullets and cartridges to detect the shooter, examination of explosives, drugs, alcohols, illicit liquors, chemicals, acids, alkyls and other substances, examination of corrosive acids in acid throwing cases, examination the questioned documents, forged signature, hand writing etc., to solve intellectual property disputes, corporate fraud, to examine electronically and digitally stored evidences as to whether these have been

modified or not, to examine photos or audios or videos, to search missing persons, and many other examinations.

Nothing can be done to establish a case, until and unless investigations made by the investigating agencies in collection of evidences are accurate. The testimony of known witnesses may be the basis of a case. But in certain instances, some witnesses turn hostile or witness died during proceedings. In these instances to find out the truthfulness, the witnesses are subjected to lie-detection test with his due consent. During the trial period, sometimes judges require some expert advice to solve the technical questions while admitting or denying the evidences.

On the other hand, in few cases, forensic science shows it's negative approach leading to grave miscarriage of justice. Various factors like, improper collection and preservation of physical evidences, manipulation in report of examination, defect in technology and instruments used in examination may affect the result. Delay in collection of evidences may cause failure of justice, because there may be the chances of destruction of evidences. Factors like working condition, emotional and physical effect, occupational hazards, public image, domestic reason, availability of resources and techniques, political pressure may affect the experts while conducting examinations. As scientific officers or experts are human beings, some misconception and ignorance may lead to defective results. In these circumstances the victim is affected negatively.

D.N.A. and blood test of a person is against human ethics and breach of privacy. The hon'ble Supreme Court and National Human Rights Commission have prescribed certain guidelines as to conduct blood test, D.N.A. test, and Lie-detection test.

In the case of *Raghunandan vs. State of U.P.* ^[8], the hon'ble Supreme Court opined that, the failure of police to send the blood recovered form place of crime, for chemical examination in a serious crime like murder is to be deprecated. In a criminal appeal in *Marachalil Chandra Tukaram Talekar vs. State of Gujrat* ^[9], the hon'ble Court had discarded the report of doctor because it was found to be false but accepted the forensic report in which proper identification of place of murder was made.

Legal Provisions as To Admissibility of Forensic Expert Evidences

Section 293 of Code of Criminal Procedure, 1973 provides provision as to use of examination report of certain Government scientific experts in course of any inquiry and trail or other proceedings under the Act.

In courts of law, the reports of experts are accepted as corroborative evidence and the court of law has to find out that, whether the experiments or examinations are done properly with due care and caution or not, and secondly, whether these experiments are done in accordance with provision of law or not. If the court thinks fit, it may issue summons to any director, deputy director or assistance director of any Forensic Science Laboratories who have conducted the experiment, during course of trail.

Section 45 of the Indian Evidence Act, 1872 provides provision as to admissibility of expert opinions in course of trail. As per this section, the court may seek assistance and opinions of person who has special skill on foreign law, or of science of art, or as to the identity of hand writing or finger impression to form it's own opinion.

An expert is one, who is skilled in any particular art or trade or profession being possessed of particular knowledge

concerning the same ^[10]. However, expert is not a witness of fact and his evidence is really of an advisory in character. It is only duty of expert to assist the judge on some scientific criteria for testing of independent judgement by the application of scientific criteria to the facts proved by evidence of a case ^[11].

Highlighted Instances

In order to make the role of Forensic Science more visible, some recent highlighted instances can be discussed, like Delhi gang rape case, Sheena Bora murder case etc.

Delhi Gang Rape Case

Fact of the case: On 16th December 2012, a girl and her friend, were returning home by bus at night. On the same day, at about 11 P.M., they were found on road by a passerby. At that time, the partially clothed victims were injured. There were six other persons in bus, including the driver who allegedly assaulted and raped the girl and beat her boyfriend with iron rod brutally. The incident was took place at Munikara. The girl died on 29th December 2012 due to her injuries, while treatment was going on a hospital. During the course of investigation, that bus was detected. Two blood-stained metal rods were found from bus. Police arrested some suspects within 24 hours. After due investigation, the police arrested the accused persons among whom one was juvenile. One accused name Ram Singh died in trail period. At the end of trail, the juvenile was found guilty of rape and murder under the Juvenile Justice Act, and was sentenced to three years of imprisonment in a juvenile reform shelter. The remaining four adult accused were found guilty of rape, murder, unnatural offences and destruction of evidences and sentenced with capital punishment.

Role of forensic science: Here, the bus was detected from the recordings of highway CCTV along with the description made by the victims about that vehicle. The police also used a cell phone stolen from the two victims to find out one of the accused. The seized metal rods and clothes of victim were sent for examination. It was found that the victims were beaten with iron rod by examining blood -stain found on that iron rod. By collecting and examining the blood, semen, tissue of accused persons and vaginal secretions, tissue, clothes of girl, it was found that, the accused persons committed the rape of the victim. Other scientific methods were also used in investigation for collection of evidences.

Sheena Bora Murder Case

Fact of the case: The deceased, Sheena Bora went missing on 24th April 2012. The Mumbai police arrested her step father, mother and her mother's driver in August, 2015 with an allegation of abducting and killing the deceased. These arrested persons confessed that, Sheena Bora is still alive. On 23rd May 2012, local police discovered a dead body of unknown person with foul odour in Pen tehsil of Raigad on the basis of information provided by villagers. The police sent the skeletal remains for Examination. Again Mumbai police arrested the mother of the deceased on 25th August 2015 and charged the accused under sections 302, 201 and 34 of Indian Penal Code, 1860. The police also arrested the step father of the deceased with charges under sections 364, 302, 201 and 120-B of Indian Penal Code, 1860.

Role of forensic science: At first, the police could not identify the body of deceased, which was the basis for

establishing the case. Here forensic science helped in identifying the deceased and in tracing out the cause of death from skeletal remains in the crime scene. Peter Mukerjea who had a link with this crime underwent a lie-detector test after his due consent which indicated that, answers to some of questions were misleading. Call records have revealed that Peter Mukerjea was in continuous contact with mother of that girl before and after the murder of deceased. A pen drive, laptops, a hard disk and cell phones were seized. Forensic laboratory had played a great role in detecting deleted e-mails and text messages based on logs saved in the hard disk of computers which helped in collecting electronic evidences against the accused persons. In due course of investigation, it also helped in collecting other evidences and in finding out the truthfulness in the fact of case.

Conclusion

We should extend our hands for maintaining peace and order in the society for self-satisfaction. In order to achieve bright future and to watch the gloriousness in the sky, lamps of consciousness are to be lightened. The fact that, the Forensic Science has both positive as well as negative aspects is not deniable. As Forensic Science is one of the most important aspects for administration of justice, it shall have the positive approach towards the administration of justice. Well-developed technologies and methodologies shall be introduced to maintain high standard in quality and accuracy in results. Along with this, investigations and proceedings shall be just and fair, which is the fundamental principle of 'Natural Justice'. Factors responsible for creating obstacles in the harmonious path of justice delivery system shall be eradicated, so that, the victims can be able to test the real fruit of justice delivery system. In certain cases confidentiality as to the information about criminal and victim shall be maintained. Last but not the list, it is the high time to watch, whether victims are getting proper justice or not, which is the sole goal of our constitution.

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