

Study of Use of Forensic Science in Crime Investigation

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Abstract: *Crime in some form or has existed since the beginning of human race. With advancement in science and technology the concept of crime as well as the methods adopted by criminals in its commission have undergone a phenomenal change. On one hand the intelligent criminal has been quick to exploit science for his criminal acts, on the other hand the police investigators no longer able to rely on his old-age art of interrogation, development of sources and surveillance to detect crime. The barbaric and torturous methods of detecting crime have also no place in a civilized society. It is in this context, Forensic Science has found its existence. In recent years, forensic science has been widely used as universally accepted as it is useful in solving complicated question of facts in the field of law. Its development has provided a powerful tool in the law enforcement agencies and the judiciary. Due to this the use of technology in crime investigation has been step forward in the process of progress of criminal justice. Police utilize logical tools and techniques to detect a crime, reconstruct the crime scene, identify the suspected wrongdoer and ascertain critical links; the court, on the other hand take account these substantial evidences and resolve with improved accurateness the innocence or guilt of the offender. Also the forensic evidence regardless of being the secondary evidence, are natural in nature and have great corroborative value.*

Keywords: Indian Evidence Act, 1872, Forensic, Fingerprints Evidence, DNA Evidence, Lie Detector Test, Brain Mapping, Narco- Analysis Test

I. INTRODUCTION

The science that is used in crime investigation is called "Forensic Science". It is the most important aspect of any criminal investigation as it allows the authorities to identify the suspect in crime. Also it helps in determining when and how a crime has occurred. The word 'forensic' means "about the law" so logically forensic science involves the application of scientific principles to legal investigations. Thus forensic science helps in identifying the perfect evidence which held the suspect guilty in criminal law.

The subject matter of forensic science are very much vast as it includes various branches, areas, for example: DNA analysis, fingerprint, pathology, toxicology, etc. All these helps in determining the cause of death of victim and also helps court in coming to the conclusion as to 'who is the real accused' so that court can punish the accused without reasonable doubt. Thus it can also be said that forensic science maintain saying that "Let hundred guilty be acquitted but one innocent should not be convicted".

Furthermore, forensic evidence is a discipline that works accordingly with the parameters of the Indian Legal System. Its function is to provide the correct information to the judges upon which they can have full trust in determining criminal as well as civil disputes. An expert in forensic such as scientist from any technical field provides analysis of the evidence, witness testimony on examination results, technical support and even training in his or her specialized area. In recent times, forensic science has become a highly developed scientific procedure, so if sometimes there are large number of suspect the in such case with the help of forensic science and its modern developed techniques this length of suspect become narrow and this helps in completion of investigation process faster.

More specifically, forensic science answers the questions that are of legal interest and employs techniques and tools to interpret crime scene evidence and use that information in investigation. It involves the use of physics, chemistry,

biology, computer science, and engineering for evidence analysis. Therefore, the application of forensic science in crime investigation and the legal system is often underestimated and extremely critical.

II. METHOD OF DATA COLLECTION

In the current doctrinal research paper, a secondary data-collection methodology was utilized to access dependable data concerning the factors contributing to the rise of abetment to attempt to murder, Rape and the effectiveness of current regulations in preventing such incidents. This data was sourced from a variety of materials including books, journals, websites, live court proceedings, and significant legal judgments.

III. DISCUSSION

In recent times Forensic Science serves as an important method in finding solutions to difficult and unsolvable cases. It aids the investigators in all stage of investigation. Forensic techniques are used to determine the cause of death of victim of crime. This is done by examining the injuries, bite marks, burn marks etc. on the body of victim of crime. Forensic science also determines time of crime and weapons used for commission of crime. In case of accidents, forensic science is used to calculate speed of vehicle, tyre marks condition of vehicle etc. Forensic Techniques are also used to detect cybercrimes which is called as computer forensics. Thus likewise there are various such branches and techniques of forensic science.

The present research will be explaining all these branches and use of such modern techniques of forensic science which are very significant for us to understand as Forensic Science plays a very crucial role not only in investigation process but also in conviction or acquittal of accused

The area of forensic science is so broad and diverse that currently it has become very essential for the purpose of delivering justice. It is an integral part of criminal justice system in India. It includes all renowned techniques such as DNA analysis, analysis of fingerprints, ballistics and explosives, etc. In India, the inquiry of crime and prosecution of people who have committed the crime is not that great. Even in outrageous crimes a large number of offenders are not prosecuted and a few proportions of trials end up in release or acquittal because of which several criminals along with crimes are increasing regularly. This happens generally because of outdated procedures of inquiry and investigation which lead to various ambiguities. Thus for genuine investigation scientific methods of investigation are required and necessary which is done forensic lab with the use of forensic science and it's modern techniques. Today, in every criminal case, for it's disposal forensic evidence is considered necessary as it helps in disposing off the case beyond reasonable doubt.

IV. CONCLUSION

The present study is based on the use of forensic science in crime investigation. In this we have firstly seen about various branches of forensic science and how it works it works in various stages of crime investigation process. In this, firstly we have seen about forensic pathology which helps us in determining the cause and manner of death. Secondly we have seen forensic anthropology which does study on human remain (i.e. skeletal analysis) which helps in solving criminal cases. Thirdly we have seen forensic odontology which is related to teeth and provides dental evidence. Fourthly we have seen forensic biology in which there is the application of biological concepts and procedures to legal field which helps in solving criminal cases. Fifthly we have seen forensic entomology which is the study of insects associated with crimes. Sixthly we have seen forensic engineering in which engineering principles are applied to investigation of failure or other performance problems. Seventhly we have seen toxicology in which science helps us to understand harmful effects that chemical substances can have on people, animal and environment. Eighthly we have seen digital forensic which focuses on identifying, acquiring, processing, analyzing and reporting on data stored electronically. Ninthly we have seen forensic ballistics which deals with shooting incidents for the purpose of justice. Tenthly we have seen forensic psychology which intend to provide professional psychological expertise in judicial and legal systems. At eleventh place we have seen forensic podiatry which is the study of foot and footprints and provides information and evidence regarding same. At twelfth place we have seen forensic linguistic which examine language and provide language evidence in criminal cases or civil matters. At last we have seen forensic geology which is the study relating to minerals, oil, petroleum and other materials found in the earth.

Later, in chapter 2 we have seen various techniques that are used in crime investigation process by various such branches of forensic science. Techniques like Narco analysis test, polygraph or lie detector test, brain mapping or p300 test, DNA profiling and fingerprints are being used and these techniques plays vital role in investigating process and in finding accused.

In last chapter (i.e. chapter 3) we have seen various types of evidence provided by these forensic branches which are useful in conviction of accused. Evidence provided by forensic science's branches (i.e. forensic evidence) includes fingerprint evidence, trace evidence, DNA/biological evidence, weapons evidence, drug evidence, evidence related to natural/synthetic material and digital evidence.

V. SUGGESTIONS

The following are the suggestion or recommendations posed by the researcher towards the research problem
The science used in investigation of crime is called as Forensic Science, and it is an integral part of criminal justice system which plays a very crucial role in it by aiding in investigation process and coming to the conclusion of any case by the Hon'ble court. This forensic science consists of various aspects which we will be seeing in this research.

In this research we will be first see in detail about various branches of Forensic Science like, Forensic Pathology, Forensic Anthropology, etc. In this we will be seeing that which branch will deal with which thing in investigation process, like if an accident has occurred the answer of the question as to speed of vehicle, tyre marks will be given by which branch, if murder is committed then answer of the question as to reason for death of victim, time of death of victim, etc. will be given by which branch, all such things we will be seeing in this chapter of research.

Next to this we will be seeing about the techniques used by these various branches of forensic science in investigation process. Techniques like DNA Profiling, Fingerprints, Brain mapping, etc. all these we will be seeing in detail in another chapter of research. After that, we will be seeing various types of forensic evidence that plays crucial role in disposing off the case by the court beyond reasonable doubt. And at last there will be conclusion on this entire research project.

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