Use of Forensic Science in Investigation of Crimes; a Critical Legal Study

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Abstract:
The research project will deal with the significance of forensic science in the field of Criminal law. Also, it will be discussing with the theme of forensic science in context to criminology generally and will not be inclined towards any one branch of the science or for any one kind of crime. The research also includes the Expert witnesses who belong to the field of forensic or are so knowledgeable that are their testimonies can be relied upon by the Court. The studies conducted in the past few decades have revealed a significant phenomenon whereby innocent persons are convicted. This phenomenon can also not be doubted or ignored. Therefore, the role of Experts and their special knowledge came into place with immense importance in the field. The research project will talk about the same value of forensic science in the field of criminal law and their effect on people.

Keywords: science, forensic, law, significance, expert witness, accused, criminology.

I. INTRODUCTION

Forensic science can be explained as a study and application of science to matters of law. This connection of science and law provides new ways and methods for discovering the reality. The word “forensic” is derived from the Latin word “forensis” which means forum, a public place where, in Roman times, senators and others debated and held judicial proceedings. Forensic science is an integrative subject combining several branches of learning used for inquiring crime scenes and collecting evidences to be used in the trial for prosecution of offenders in a court of law. The techniques of forensic science are used to scrutinize acquisiescence with international agreements regarding weapons of mass destruction. Earlier, the main areas used in forensic science were biology, chemistry, and medicine. However, with time forensic science included various branches like toxicology, cyber forensic, handwriting, fingerprinting, ballistics, forensic psychology, anthropology, geology, forensic engineering, and oenology. Forensic scientists examine objects, substances (including blood or drug samples), chemicals (paints, explosives, toxins), tissue traces (hair, skin), or impressions (fingerprints or tidemarks) left at the crime scene. Forensic expert provides an important source of information for criminal proceedings (whether international or domestic). They expertise from mass graves is no exception: findings from exhumations and examinations have featured in the ad hoc tribunals’ trials and judgments. The fact is that only a very few professionals are equipped with the knowledge necessary to fully apply the potential of science in civil, criminal, and family legal matters.

II. LITERATURE REVIEW

Grover (2014) aims at the development of forensic science over the period of time. The development has been supported by various cases thoroughly of Criminology in the Indian Legal Regime. The study of history is important for the construction of a base which trustworthy and reliable for further research to be done. The author opined that there has always been an ongoing effort to expand forensic science laboratories and institutions, particularly through central funding allocated to state for that purposes. The article also summarizes medico-legal status of criminal investigation in India. This research builds a base for my research topic by conveying the developments of forensic science and its budding consequence in law.

Klinker (2009) explained the relation between forensic science and criminal investigation as employee-employer respectively, i.e., “Forensic science is employed in order to investigate cases or questions that are of interest to the legal system and to help solve legal disputes.” In the framework of international criminal proceedings, forensic science is predominantly concerned with helping to establish the actus reus of an atrocity crime, rather than the mens rea of the alleged perpetrator. The author also discussed on the fundamental tools of conducting forensic investigations, which are ‘observation and interpretation of physical evidence’. Also, she also supported the bases of forensic scientific method given by T.F. Kiely which are:

1. Recognition and understanding of information and evidence at the crime scene
2. Collection procedures used by scientists to collect and record the evidence
3. Testing phase when the evidence is examined and tested according to current, adequate testing standards and
4. Meeting the evidential requirements of the trial.

The paper also tried to correlate both the fields as:
1. The legal system and forensic science aim to produce knowledge, although with a functional difference: the legal system finds facts as the basis for justice, whilst forensic science produces knowledge for the sole purpose of assisting the court in its fact-finding task.
2. Both are limited by the context of the case at hand, both are bound by legal procedures or scientific protocols, both belong to professional communities and subscribe to a professional ethos. There are also notable structural parallels between their
respective approaches to generating accurate knowledge: the law relies on courtroom testimony, whereas empirical science is built upon recorded observations; testing the evidence through cross-examination in court in some ways resembles scientific techniques of hypothesis testing and falsification.

Lambert (2003) based his thesis on an empirical study resulting in exploring the position in Michigan of forensic science as a subject with respect to law. Here, the majority of the respondents felt that evidence collection, latent and fingerprint evidence, crime scene documentation, and interviewing techniques are important or very important areas. The areas tend to be covered in advanced forensic science courses and are generally considered as areas of specialization in the field of law enforcement and the forensic sciences. The lack of perceived importance for these areas is probably due to two factors. First, these areas tend to be handled by specially trained personnel who tend to have graduate degrees in the hard sciences. Second, many current law enforcement officials have little background in these areas themselves and therefore may not fully understand their importance in a criminal investigation. The survey results indicate that criminal justice programs do not need to develop entirely new programs leading to a forensic science bachelor’s degree in order to improve the employability of their students in the field of law enforcement. Most of the forensic science knowledge areas ranked as important can be provided in introductory forensic science and investigation courses.

Fradella, Owen and Burke (2007) discussed the escalating road of the forensic sciences in the criminal justice system requires criminal justice educators to put together the study of forensic science and the traditional social science curriculum. Yet, most professors in criminal justice find forensic science expertise sufficient to meet the educational demands of the field, as it is intertwined with natural science disciplines, especially biology and chemistry. Accordingly, this paper advocates the formation of an interdisciplinary forensic studies program, including a discussion of need, curricular components, and overcoming potential obstacles.

Julian and Kelty (2012) the editors aims at demonstrating the significance of forensic science in various stages of the criminal justice process; that is, from the crime scene to the courts and to demonstrate the value of social science research (particularly, criminological research) to the field of forensic science. Taken forensic process as first and foremost a social process that involves the application of forensic techniques to support investigations and provide critical analysis of this forensic process from a criminological perspective is important at a time when there is greater reliance placed on forensic evidence in police investigations and in the courts. At the same time, the potential value of forensic science in the areas of security, intelligence and crime prevention can only be realized through a stronger engagement between criminology and forensic science. Further, the articles and comments in issue demonstrated the interface of forensic science and criminal justice is an issue of current significance to contemporary criminology and not offering a solution per se.

Objective
1. To ascertain the importance of forensic science in the field of law.
2. To ascertain the issues & concerns of admissibility of various kinds of forensic evidence in the Legal Regime.

Research Methodology
This research project shall follow a theoretical research methodology. The scope of the project shall be limited to the value of forensic science generally and not specifically to one of its field. The research shall not be restricted geographically. The literature reviews have been arranged thematically in this research project. In this method literature reviews are organized around a topic or issue, rather than the progression of time.

III. FINDINGS & CONCLUSION
Forensic science refers to the application of scientific methods, procedures, and techniques “directed to the recognition, identification, individualization, and evaluation of physical evidence by the application of the natural sciences to law-science matters” (DeForest, Petracco, and Koblinsky). It has diverse sub-fields such as physics, chemistry, geology, biology, medicine, psychology and so on. However, a broad position has also been adopted by few who argue, “Regardless of the area of sub specialisation, forensic science involves the application of scientific principles and methods to the evaluation of evidence.”[1] Since it involves the scientific analysis of evidence, forensic science plays a vital role in the justice system of various nations of the world. The law recognizes the importance of forensic evidence in prosecuting criminal cases. When scientific methods are rigorously used, without bias or prejudice, they can provide cogent evidence in uncovering and proving crime. Besides DNA testing, which continues to receive broad support in the courts, a host of older more mundane techniques are routinely used in criminal trials across the world. Perhaps the oldest forensic technique involves finger and palm print identification, which traces to the Chinese as early as 650 A.D. Forensic evidence is frequently used to both convict and acquit defendants (Giannelli 1997). Because of this, there has been a significant growth in the number of crime laboratories in the world during the past several decades (Lappas 1978). In US, Canada, UK & Australia special acts have been enacted to improve the forensic status so that the crime can be detected with certainty & as a result, conviction rate can go up. They emphasize more on timely and quality crime scene management. The first[2] official crime laboratory in India was established in 1878. Now approximately there are over 35 crime laboratories in the nation restricted for particular nature of evidences. The increase in the number of crime laboratories has been fueled by the ever-evolving and growing field of forensic science and by the essential role forensic evidence plays in numerous criminal cases (Berg and Horgan 1998; Garland and Stuckey 2000; Steadman 2000). This rapidly evolving field increases pressure on law enforcement agencies to collect evidence properly. In high profile cases, the news media highlights the importance of forensic science evidence but also focuses on mistakes in locating, identifying, securing, handling, and presenting forensic evidence. Professor Margot argues: “Forensic science has to be part of investigative services of law enforcement…. The scientist must have full control of the scene and have access to knowledge about the case to be selective about potential findings.” Expert witness testimony provides an important source of information for international criminal proceedings, and forensic science expertise from mass graves is no exception: findings from exhumations and examinations have featured in the ad hoc tribunals’ trials and judgments. Whilst the issues surrounding the law-science relationship have been explored within the realm of national legal systems, the mixed system adopted by the Courts

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presents an established discussion with a new context. There is a concern that an officer with additional forensic science training might become overconfident and inadvertently (or intentionally) taint evidence, rendering it inadmissible. On the other hand, since a considerable amount of crime scene evidence is currently rendered inadmissible due to a lack of proper collection (if it is not trampled underfoot and left uncollected entirely), proper training is more likely to make the situation better rather than worse providing it is performed by competent forensic science instructors. This science has an explanatory power which results in convicting the guilty or exculpating the innocent in a great number of cases (Giannelli 1997).

IV. SUGGESTIONS

Forensic science has grown in its complexity and importance over the past several decades. This has led to greater demands being placed on law enforcement. In several cases, law enforcement has been questioned and criticized in the identifying, securing, and handling of critical forensic evidence. There is a clear need for law enforcement personnel to be more knowledgeable about forensic science criminal evidence. College and universities provide the skills, knowledge, and problem-solving abilities necessary for complicated, changing tasks to be carried out (Lindquist 1995). Therefore, colleges and universities are important in helping the field of forensic science to grow (Tilstone 1991). Criminal justice and criminology programs have responded by creating offerings ranging from a single course to a multitude of forensic science courses covering such sciences. The main goal of these courses should be to broaden the knowledge of evidence. College and universities provide the skills, knowledge, and problem-solving abilities necessary for complicated, changing tasks to be carried out (Lindquist 1995). Therefore, colleges and universities are important in helping the field of forensic science to grow (Tilstone 1991). Criminal justice and criminology programs have responded by creating offerings ranging from a single course to a multitude of forensic science courses covering such sciences. The main goal of these courses should be to broaden the knowledge of students rather to make them experts. Students need to be aware that a handful of forensic science courses will not aid them in finding employment with crime laboratories (Lindquist 1994). Instead, these courses shall aid them in pursuing a law enforcement career.

V. REFERENCES


