Forensic Medicine

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DECLARATION

From the very beginning of my academic life, I was given more and more effort in learning, in spite of obtaining good marks in exams. That's why as a matter of continuity, I have tried hard and soul in order to prove my skill in preparing thesis report rather than obtaining better grade, without justifying my own capability. Therefore, in the course of making the thesis report, I did not attempt to disguise covering myself by the work of others. Thus, I do hereby solemnly declare that the thesis report has been prepared by me. The work I have presented does not breach any copyright.

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CERTIFICATION

This is to certify that the thesis on "Forensic Medicine" is done by A.B.M.Shahjahan Akandha, ID: 03005806, in partial fulfillment of the degree of LL.B (Honours) from Stamford University Bangladesh. The thesis has been carried out under my guidance and is record of the bonafide work carried out successfully.

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ABSTRACT

This dissertation is focused on the science which deals with the application of knowledge of each and every branch of medicine, whenever and wherever it is required or necessary for taking decision in legal affairs both in civil and criminal cases. In this essay, how the forensic medicine aids in establishing administration of justice – it has been stated. In order to aid in the administration of justice, the concerned forensic medicine departments are always dealing with judicial investigation, medico-legal reports, medico-legal evidences, identity of both victims and criminals etc. In this report, as a participator in establishing rule of law, the different role of doctors like: forensic science expert, medico-legal expert, expert witness are also enumerated. Besides these, another important thing has been added, viz. forensic criminology, which deals with crime & criminals, detection of crime and doctor's criminality. From the involvement of doctors in legal procedure and to the taking of medical evidence through applying the provisions of related laws (Penal Code, CrPC, Evidence Act), all are discussed in this essay. The intention of this report is to identify the relationship between the legal professionals & medical professionals and to determine the essence of combination between these two, in order to establish the prudential administration of justice. Actually forensic medicine is mostly an exercise of legal sense, combined with the application of medical knowledge and experience, which is not properly followed in our country. In the conclusion, some recommendations are given to overcome the emergencies.

CONTENTS

Chapter 1

INTRODUCTION

1.1 Definition

Forensic means “of or used in courts of law”, and forensic medicine means that branch of medicine which is used in courts of law. Forensic medicine deals with the application of medical knowledge to aid in the administration of justice. It is used by the legal authorities for the solution of legal problems. Some examples are: applying the medical knowledge in deciding cases of injuries, hanging, sexual offences, infant deaths, poisoning etc. in short sense, it deals with medical aspects of law.

Forensic medicine may be defined as ‘the science which deals with the application of knowledge of each and every branch of medicine, whenever and wherever it is required or necessary for taking decision in legal affairs both in civil and criminal cases.

Forensic medicine is defined as, the medical specialty which applies the principles and practice of medicine to the elucidation of questions in judicial proceedings.

It has also been defined as, those aspects of medical science including its physical, chemical, biological principles as the specialties which helps us to bring it in partnership with the process of law both civil and criminal.

It is the subject concerned with the application of medical and paramedical scientific knowledge to certain branches of law, both civil and criminal.

It is the subject which deals with the application of medical knowledge to aid in the administration of justice.

1.2 Difference between forensic medicine and medical jurisprudence

There are a number of legal and medical professionals who are confused regarding the concept of forensic medicine and medical jurisprudence. They think that these two are same thing, but actually there are some very crucial difference between the forensic medicine and medical jurisprudence:

Medical jurisprudence (juries =law; prudential = knowledge) deals with legal responsibilities of the physician with particular reference to those arising form the physician-pattern relationship, such as medical negligence case, consent, right and duties of doctors, serious professional misconduct, medical ethics etc. in short, it deals with legal aspects of medical practice. Medical jurisprudence deals with the application of knowledge of law in the practice of medicine. It is used by the members of medical profession for their guidance. It deals with the responsibilities of the doctors with the particular reference to those arising from doctor-patient relationship, doctor-doctor relationship and doctor-state relationship etc. It can only be applied to members of medical professions. It brings relationship between doctor & patient, also doctor & society.

On the other hand, Forensic medicine deals with the application of medical knowledge in the administration of justice. It is used by the court for the solution of legal problems. It can be applied to all people. It brings the medical men into contract with courts of law.

1.3 With which forensic medicine deals

Forensic medicine is a science of applying medical facts to legal problems. Routine tasks include filling out birth and death certificates, deciding insurance eligibility, and reporting infectious disease. Perhaps more significant is medical testimony in court. When merely relating observations, doctors are ordinary witnesses; interpreting facts based on medical knowledge makes them expert witnesses, required to present their opinions without bias toward the side that called them.

Forensic medicine is typically involved in cases concerning blood relationship, mental illness, injury, or death resulting from violence. Autopsy (post-mortem examination) is often used to determine the cause of death, particularly in cases where

foul play is suspected. Post-mortem examination can determine not only the immediate agent of death (e.g. gunshot wound, poison), but may also bring important contextual information, such as how long the person has been dead, which can help to trace the killing.

Forensic medicine has also become increasingly important in cases involving rape. Modern techniques use such specimens as semen, blood, and hair samples of the criminal found in the victim's bodies, which can be compared to the defendant's genetic makeup through a technique known as DNA fingerprinting; this technique may also be used to identify the body of a victim. The establishment of serious mental illness by a licensed psychologist can be used in demonstrating incompetence to stand trial, a technique which may be used in the insanity defense, albeit infrequently.

Forensic medicine deals almost entirely with crimes against the persons, in which medical examination and evidence are required. Forensic medicine is mostly an exercise of commonsense, combined with the application of knowledge and experience, already acquired in the study of other branches of medicine, surgery, etc. Its aim is to find out the truth and its particular field of activity is judicial investigation of both civil and criminal. All medical work is of a responsible charter, especially the medico-legal work, such as issuing certificates of lunacy, ill health, accident, etc. In all cases of crime involving the person, e.g. homicide, suicide, assault, sexual offences, traffic accidents, poisoning etc. the help of the medical practitioner is sought by the police. In all such cases, the doctor will be required to appear as an expert witness in a court of law. In some cases, the doctor is the chief source of evidence upon which legal decisions are made. In cases of sudden death, the authorities will depend mostly or completely on medical evidence in establishing the cause of death.

1.4 Concerned department with forensic medicine

There are certain departments which are concerned with forensic medicine. In those departments, not only the doctors are concerned but also some other professionals, who are concerned with forensic medicine:

Doctor : As Specialist.

Judge : To take decision in the matter to be judged.

Police : As investigator.

Lawyer : To assist the judge in the matter to be decided.

In many criminal offences, it becomes necessary to know about the separate application of forensic medicine in order to establish the prudential justice. The doctor has to give his opinion as a specialist; after determining the all necessary evidences and examining the doctor's opinion, the judge produces judgment in the matter which is to be judged; by the application of the forensic medicine, it becomes so easy for the polices to produce investigating reports; and regarding the matter of lawyers it is very much essential to know about the practice of forensic medicine because in every case the lawyers have to assist the judge in the matter to be judged.

1.5 Aims of forensic medicine

Actually forensic medicine deals with the medical aspects of law. Its aim is to acquaint lawyers and policemen with forensic medicine about any crime to person's health, life or dignity can not be exposed without assistance of forensic medicine, medical criminality and other injuries including determination of the death and time of the death. The main aim of forensic medicine is to aid the administration of justice by correlating much medical knowledge and applying it to the purposes of law. Its particular field of activity is judicial investigation, both civil and criminal. Though it does not itself prove the case of prosecution, it corroborates medical evidence in all cases of crime involving the person, e.g. homicide, suicide, assault, sexual offences, traffic accidents, poisoning etc. It finds out the medical evidence in all cases of crime involving the person. The knowledge and technique of forensic medicine applied to assist in the resolution of crimes, legal disputes, etc., constitute forensic medicine. Establishing the identity of victims (in cases of murder, accidents, etc.), criminals (in case of rape, murder, etc.) and the father (in case of paternity disputes), etc., is critical in solving the problem of crimes and disputes. This field was completely revolutionized by the technique of DNA fingerprinting. Its aim is to acquaint lawyers and policemen with forensic medicine and forensic science because any crime to person's health, life or dignity can not be exposed without assistance of forensic medicine, medical criminality, traumatism and other injuries including determination of the death and time of the death.

Chapter 2

HISTORY

The "Eureka" legend of Archimedes can be considered an early account of the use of forensic medicine. In this case, by examining the principles of water displacement, Archimedes was able to prove that a crown was not made of gold (as it was fraudulently claimed) by its density and buoyancy.

The earliest account of fingerprint was used during the 7th century. According to Soleiman - an Arabic merchant, a debtor's fingerprints were affixed to a bill, which would then be given to the lender. This bill was legally recognized as proof of the validity of the debt.

The first written account of using medicine and entomology to solve (separate) criminal cases is attributed to the book Xi Yuan Ji Lu "Collected Cases of Injustice Rectified", written in 1248 China by Song Ci (1186-1249). In one of the accounts, the case of a person murdered with a sickle was solved by a death investigator who instructed everyone to bring their sickles to one location. Flies, attracted by the smell of blood, eventually gathered on a single sickle. In light of this, the murderer confessed. The book also offered advice on how to distinguish between a drowning (water in the lungs) and strangulation (broken neck cartilage).

In sixteenth century Europe, medical practitioners in army and university settings began to gather information on cause and manner of death. Ambrose Pare French army surgeon systematically studied the effects of violent death on internal organs. Two Italian surgeons, Fortunato Fidelis and Paolo Zacchia, laid the foundation of modern pathology by studying changes which occurred in the structure of the body as the result of disease. In the late 1700s, writings on these topics began to appear. These included: "A Treatise on Forensic Medicine and Public Health" by the French physician Fod, and "The

Complete System of Police Medicine" by the German medical expert Johann Peter Franck.

In 1775, Swedish chemist Karl Wilhelm Scheel devised a way of detecting arsenics oxide, simple arsenic, in corpses, although only in large quantities. This investigation was expanded, in 1806, by German chemist Valentin Ross, who learned to detect the poison in the walls of a victim's stomach, and by English chemist James Marsh, who used chemical processes to confirm arsenic as the cause of death in 1836 murder trial.

Two early examples of English forensic medicine in individual legal proceedings demonstrate the increasing use of logic and procedure in criminal investigations. In 1784, in Lancaster, England, John Toms was tried and convicted for murdering Edward Culshaw with a pistol. When the dead body of Culshaw was examined, a pistol was (crushed paper used to secure powder and balls in the muzzle) found in his head wound matched perfectly with a torn newspaper found in Toms' pocket. In Warwick, England, in 1816, a farm laborer was tried and convicted of the murder of a young maidservant. She had been drowned in a shallow pool and bore the marks of violent assault. The police found footprints and an impression from corduroy cloth with a sewn patch in the damp earth near the pool. There were also scattered grains of wheat and chaff. The breaches from a farm laborer threshing wheat nearby were examined and corresponded exactly to the impression in the earth near the pool.

Medicine and law have been related from the earliest times and the bonds which Law-medicine problems are found in the written records in Egypt, Babylon, India, and China dating back 4000 to 3000 B.C. gives information on poisons. The code of Hammurabi, King of Babylon (about 2200 B.C.), is the oldest know medico-legal code. Hippocrates (460 to 377 B.C.), the “Father of Western Medicine” was born and practiced in the island of Kos in Greece, discussed the letality of wounds, His contribution to medical ethics is by far his greatest in our field. About 300 B.C., the Rabbits of the Rabinical Court, responsible for implementing the Jewish laws, sought the aid of medical expert in the administration of justice-collaborated in the development of the principles of forensic medicine. Around the beginning of the Chrisitian era, various eugenic and public health provisions were laid don in the laws of Menu, and many sexual matters were

brought under the law in India. In the sixth century A.D. the Justiman Code and Institutes regulated the practice of medicine and surgery, and established the function of the medical expert for the legal procedure. The first medico-legal autopsy was done in Bologna (Italy) in 1302, by Bartolomeo De Varigana. In the thirteenth century, a manual was prepared to aid in the investigation of death in China. In sixteenth centry, the Penal code of Bishop of Bamberg, and the Caroline Code, both increased importance of legal medicine by their insistence that medical testimony was an essential part of the proof in trials. The 'Constitution Criminalis Carolina', published in Germany in 1532, recognized that there were several types of homicide which ere not pubishable under certain conditions, one of which was an offender who was 'deprived of his understanding'. The greatest of all works was the "Questiones Medico-legalis" (medico-legal questions), written by paulus Zacchihas, who was principal physician to Pope Innocent X, and Alexander VII, and an expert before the Rota Romana, the Court of Appeal. This was published in seven volumes from 1621 to 1635 and two additional volumes in 1666, at Amsterdam. This work remained an authority in medico-legal matters until the beginning of the nineteenth century. Paulus Zacchias is considered the Father of Legal Medicine as well as Father of Forensic Psychiatry. In questiones Madeco-legals he declared that physicians should have exclusive competence in the field of pathological mental states, amentias. He provided of pathological mental states, amentias. He provided a classification of mental disorders keeping in mind the legal issues at that time. Around the end of sixteenth century, autopsies in medico-legal cases began to be generally practiced. The first book on Forensic medicine was published in 1602 by an Italian physician, Fortunato Fedele.in the eighteenth century, professorship in legal medicine were founded by the State in Germany. Orfila (1787 to 1853). Professor of chemistry and legal medicine at Paris introduced precise chemical methods into toxicology. In 1843, the law regarding the criminal responsibility of insane persons was established in England in Mc Naghthen's case.

Chapter 3

SIGNIFICANCE OF DOCTORS IN FORENSIC MEDICINE ARENA

3.1 Doctor as medico-legal expert

The medico-legal expert is not a detective. He may use his knowledge and intelligence to help the police to solve a crime. His role should be to furnish the police with specific information of matters of which he has specialized knowledge. Because of his special knowledge, a non-medical clue may have significance to him, which even an experienced police officer has not grasped. The medical expert should be very careful when he is examining living people. He should not encourage an accused person to talk about the crime with which he is charged, or about the events that led to his arrest. If during a medical examination, a person should be neither recorded nor repeated. However, occasions may arise when a doctor may use an admission to direct the police to certain lines of inquiry and action without actually disclosing what has been said. Three things are needed for success: (1) the power of observation, (2) the power of deduction, (3) a wide range of exact knowledge. The power of constructive imagination is also essential, when there are no more facts to be observed, and no further inferences to be drawn. There is no substitute for basic intelligence and clinical competence. Experience, commonsense, and willingness to consider other possibilities are as essential in the practice of forensic medicine as a wide range of theoretical knowledge.

3.2 Doctor as forensic science expert witness

All forensic science expert witness must strive to achieve respect, understanding and credibility in court. They must give the appearance, the aura of being independent, non-

partisan scientists. Once a theory is embraced, it is only human nature to eagerly search for facts which support that theory, and reject those which indicate some other theory. Boarded, the French medico-legal authorities wrote, “if the law has made you (the physician) witness, remain a man of science; you have no victim to avenge, no guilty person to convict, and no innocent person to save. You must bear testimony within the limits of science”. The attitude of a scientific witness should be the same whether he is called by the prosecution or by the defense. The doctor really testifies neither for nor against the prosecution nor the defense. The doctor’s expertise in the application of science to a legal expertise is in the application of science to a legal controversy and the proper interpretation of scientific findings. His sole obligation is to present the truth as he sees it, adding nothing, withholding nothing and distorting nothing. He should not concern himself with the previous character of the accused or with other evidence in the case. He should not be influenced in any way by emotional consideration, such as sympathy or antiparty. The doctor must be honest, for confidence is inspired by honestly and success depends upon confidence.

3.3 Burden of presenting medical facts

It is advisable that the doctor should learn to look from the medico-legal standpoint upon such of his cases as are likely to become the subject matter of judicial investigation. He should acquire the habit of making a careful note of all the facts observed by him. The medico-legal aspects of any case must always be secondary to life saving treatment of the patient. Vagueness and theory have no place in forensic medicine. He should examine the facts which come to his knowledge in his special capacity, draw his conclusions logically and correctly and indicate to the court that interpretation, along with the grounds on which it is based. Presumption is not proof, and conjecture is not evidence. The court has no special medical knowledge. It relies on his witness for an opinion and expects him assist it with his special knowledge and experience. The burden of presenting medical facts and opinions in the best possible way rests on the pathologist. Forensic pathologist testifies on so-called “fact issues”. Such as cause and manner of death, rather than “ultimate issue” of guild or innocence, so that opinion based upon reasonable medical certainty is adequate to support the testimony of the forensic pathologist, The medical

evidence does not itself prove the case of prosecution. Other things being equal, the better is the administration of justice. Demeanor, appearance, professional manner and general behavior of the expert witness are almost equal in importance to forensic ability during testimony. The pathologist should avoid talking too much, talking too soon, and talking to the wrong persons. Prejudicial and sensational statements should not be made prior to trial. The pathologist should never overlook an opportunity to remain silent. The pathologist must be guarded in what he says and how he says it.

3.4 Testification of a doctor

A doctor may be called to testify (1) as an ordinary witness who saw something happen; (2) as the medical practitioner who treated the patient; (3) as an expert to give his opinion on matter of science. In the first two conditions it is his duty and obligation to testify. In the last condition he may refuse the request: (1) if he feels reluctant to undergo what he fears will be a painful experience, (2) if he feels that he is not sufficiently qualified to testify with any conviction in the particular case, and (3) if he feels that he cannot spare the time to prepare properly or to make long appearances in Court. A properly prepared physician often finds his Court room experience educative and not as traumatic as he would have anticipated. His introduction to the legal process may be unpleasant if he is irritated by an aggressive prosecuting or defence lawyer. The reluctance of medical practitioners to become witnesses is mainly due to the pressures of their private practice. Other factors include a fear of merciless cross-examination, harassment, and even the recall.

Chapter 4

FORENSIC CRIMINOLOGY

4.1 Crime & Criminality

Forensic criminology is a branch of Forensic medicine which deals with the crimes and criminals. Crime is an act which violates criminal law (in case of an organized state), or norms of a society (in case of tribal community or most of the earlier human societies which did not have formal law and state) and is subject to punishment. Why does a society consider some wrongs as crime and allow other wrongs to be settled in private? Natural law philosophers, for centuries, believed in universal rightness and wrongness of some human behaviors and accordingly viewed some behaviors and accordingly viewed some behaviors as innately criminal, for which all the societies denounced them equally. Homicide and theft are said to be categorized as crime by all the societies, but surprisingly this is not the case. Roman Law of Twelve Table, Babylonian Code of Hammurabi and other early legal systems did not list homicide or ordinary theft among crimes. The perpetrator could be exonerated by giving compensation or by surrendering to the injured as a substitute worker for the victim. For societies that had not developed the concept of property, theft was not a problem. Socioeconomic condition of a society, therefore, determines which act are crimes and need to be controlled by law[1], by any other mechanism of social control. In the modern sense of the term earlier societies had no legal systems, yet they had their mechanism to punish the offenders and to control wrongdoing.

The economic, social, and environmental reality of a society is reflected in the crime category made by it. In the Inca society of a country, which was crisscrossed

[1] *Ibid, p. 8.*

ravines and canyons and bridges were the only ways of communication. A person without a horse or a blanket was in danger of death among North American plains Indians, so theft of a horse or of a blanket was the most heinous crime in that society. In the ancient Germanic tribes honey was the only source of sugar for food and drinks. As beehives produced the honey, if anybody stole a beehive he was punished seriously.[2]

Some argue that crimes are defined by a small group who hold the rein of control in a society or in an organized state. To them those activities which are likely to threaten their vested interest are crimes. Sometimes categorization of crime depends on the existing values and morality which vary from society to society. For example adultery is not an offence in some society, but it is so in many countries. Incest was not punishable in many earlier societies. Later on it was prohibited by law.

Legal definition of crime is convenient in distinguishing crime from sin and moral wrongs and it gives a basic premise for characterizing criminology as scientific and precise.[3] Paul W. Tappan defined crime as "an international act or omission in violation of criminal law (Statutory and case law), committed without defense or justification and sanctioned by the state as felony or misdemeanor,"[4] To become crime any conduct must be an intentional act or omission in violation of criminal law. If some defence or justification is available for the alleged act or omission, it will not come within the purview of crime. An act or omission does not need to be always intentional in order to be crime, it can be made punishable with reference to knowledge, recklessness, or negligence, or on the basis of strict responsibility, which does not require any reference to the mental element of the wrongdoer. First, an act must have some harmful consequences in order to become crime. Mere information or mental condition is not enough. If any person becomes angry with another person and plans to do some harm to that person, but before doing it, changes his mind and finally abstains from doing the planned act, he cannot be considered to have individual must commit some act, which creates harmful consequence on the society. Second, the harmful act must be prescribed by the penal law. An act cannot be considered crime because of its being anti-social, unless an act cannot

[2] *Ibid, pp.8-9.*
[3] Ahmad Siddique, Criminology: Problems and Perspective, Fourth edition , Eastern Book Company, Delhi, 2001, p. 2-3.
[4] Paul W. Tappan, *Crime, Justice and Correction*,McGraw-Hill, New York, 1960, p. 10.

be considered crime because of its being anti-social, unless an act is defined and prohibited by law. Penal law must specifically prohibit an act without having any retrospective effect. Sanction against the enactment of ex post facto legislation is a long practiced principle of criminal law. A person cannot be punished by a law enacted after commission of any act, defining that act as crime, which was not crime during its commission. Third, an intentional or reckless action or inaction must bring about the harmful consequence. The crime should be caused by some intentional or reckless conduct.[5]

On the other hand, criminality may be defined as an innate propensity to do a came or mental inclination to perform a crime. Every human being, essentially, has to operate through a physiological and psychological system. Human knowledge, from the dawn of civilization, attempts to extend its inquisitiveness to unfold physiological as well as psychological rules as to how human body and mental system remain functional. Human body is visible and clinical experiments can be made to know biology, to detect physiological problems and to make a way out, but the whole psychological process is very abstract, at least clinical experiments are not possible the same way as it can be made workable to physiology. Almost all the religions and philosophies try to explain human mind, spirit and their concomitant phenomenon, and they differ with each other substantially due to abstract nature of psychological process. Psychology, in particular, is the study of human faculties such as personality, reasoning, thought, and intelligence, learning perception, imagination, memory and creativity.

4.2 Classification of Crimes

Concept of crime has been undergoing continuous change after its emergence. Crime and criminal law both are relative as they vary from society to society and time to time. Once most of the offences were religious in nature and these remained important until recent times. Man of the acts once considered crimes are no more considered so. Printing a book, professing the medical doctrine of circulation of blood, sale of coin to foreigners, having gold in the house—all these have been crime at different times. On the other hand many of the present law were not known to earlier generations.

[5] *Ibid, p. 13.*

On the basis of inherent character and general agreement of people, crimes are classified into mala in se and mala prohibita. Theft, robbery, murder, rape, arson, assault etc. are mala in se crimes as these are innately bad and create harmful consequences on society. There is general agreement that these acts are criminal. Mala prohibita crimes are those about which people are not in consensus that they are inherently bad, rather they are considered evil because they are prohibited by law. Traffic violations, gambling, public drunkenness, violations of municipal laws are examples of mala prohibita crimes. These violations are made criminal in order to make life more predictable and orderly and the violators are subjected to little stigma other than fine. Historically there existed little difference between mala in se and mala prohibita crimes as most of the earlier societies did not distinguish between moralities, sin. and law.

Again crimes are classified in accordance with their gravity, the more serious are called felonies and are usually punished by death, forfeiture of property or rigorous imprisonment; the less serious are called misdemeanors and are usually punished by fines or simple imprisonment. A person commits a felony is called a felon and who commits misdemeanor is called misdemeanant. It is very difficult to assume that felons are more dangerous and respond less positively to rehabilitative measures than misdemeanants.

Sometimes a person can commit felony this week and commits a misdemeanor second week. The lines, in many occasions, between felony and misdemeanor are very difficult to determine.

For long criminal offences ere classified at common law either as felonies or misdemeanors. Section 2 of the Criminal Act, 1967 introduced arrestable and non-arrestable offences in U.K. in the place of old categories. A police officer or a member of a public can arrest an offender without warrant who has committed an arrestable offence. Most of the arrestable offences are indictable offences. On the basis of trial procedure criminal offences are again classified into indictable and summary offences. More serious offences are tried on indictment in the crown court (they are called indictable offences[6])

[6] The offence is called indictable because the trial is commenced by a document known as bill of indictment which sets out the offence and its particulars with which the accused is charged.

and less serious offences are tried summarily in magistrates' courts[7] (they are called summary offences).

On the basis of the motives of the offenders, W.A. Bonger classified crimes as:

(I) economic crimes;

(II) sexual crimes;

(II) political crimes;

(IV) miscellaneous crimes.[8]

For statistical purposes crimes are frequently classified as crimes against person, crimes against property, and crimes against public decency, public order and public justice.

Penal code of Bangladesh has classified offences as offences against person, offences against property, offences against state, offences against public tranquility, public justice, offences affecting public health, safety, decency and morals, offences relating to religion, election etc.

4.3 Classification of Bangladeshi criminals

Habitual or professional criminal:

One who deliberately chooses a life which leads him to commit often with a greater degree of intelligence and tactfulness.

Occasional criminal:

One who is born with criminal propensity. He avails himself of the opportunity to commit crime probably due to bad heredity.

Congenital or instinctive criminal:

A moral insane that frequently shows well marked physical and mental abnormalities, degenerative changes or disease.

Insane criminal:

One who is physically and mentally insane, add can hardly be distinguished from congenital or instinctive criminal.

Criminal by passion:

One who usually leads an honest life, the crime being a solitary event in his life.

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[7] Katherine S. Williams, Textbook on Criminology, Third Edition, London, 1997, pp. 38-39.

[8] W.A. Bonger, Criminality and Economic Conditions, Boston, 1915, pp. 536-537.

Political criminal:

One who is usually regarded by a class of people as a hero or a martyr.

In Bangladesh the context frequency of crimes is increasing. Serious types of crimes are taking place more and more. People are becoming victims of new types of crimes. The law enforcers encounter tougher challenges in controlling and preventing the commission of crimes. The number of police is less in proportion to the populations of this country. The police do not have good training and they lack sufficient logistics support.[9] Moreover, politico-police-criminal triumvirate becomes active in the whole of Bangladesh. Because of these reasons police cannot play strong role in controlling and preventing crimes. Crimes need to be defined and classified at first. According to the nature, crimes may be serious and light. The nature may vary from time to time and country to country. Broadly crimes are classified into two categories: those related to human body (such as rape, murder etc.) and those related to property (such as theft, robbery etc.), these two types of crimes are common in almost all the countries and societies. The penal law defines crimes and prescribes penalty for every type of crime. The criminal procedure code provides the process to identify the real offenders, who have committed the crime. Socio-economic condition determines what types of crimes would take place in the society. We shall see the nature of crime is different in rural and urban areas. Socio-economic and political reality lies at the root of this difference. The crimes committed in the rural areas are murder, robbery and dacoity, burglary and theft and cattle theft. Socio-economic reality of urban areas is totally different from rural areas, hence the types of crime are different. All the banks, shopping centers, government officers are situated in the cities. People carry hard currency, females wear valued ornaments, and huge amount of money is transacted for business purpose. All these realities create huge opportunities to commit different types of crimes, which are not possible in rural areas. People of cities experience two types of realities, one during day-time, and another at night. As soon as night comes, the drug dealers start selling contraband drugs, prostitutes become active to have their clients. In mega cities like Dhaka and Chittagong, a number of professional criminal gangs commit various types of delinquencies, which finally translated into crores of money. The criminal gangs are

[9] *Ibid, p. 317.*

alleged to have patronized by incumbents, police and politicians. People of urban areas, therefore, always bear the possibility of falling into victim of any type of crimes, namely those are: hijack, murder, kidnap/abduction, burglary, pick-pocketing, rape, smuggling, fraud and deceit etc.

4.4 Detection of crime

Forensic Science can be defined as criminalistic science. In other words the scientific studies or investigation of crime can be termed as Forensic Science. Along with the development of science and technology the pattern of our society has also changed to cope with the day to day development. According the criminal also often uses different techniques for commission of various crimes within our society. So it has become a problem for the law enforcing agencies to check the potentiality of crimes. For such checking the need of forensic science becomes an essential prerequisite on the part of the investigative agencies.

The operation of forensic science is nothing but the application of techniques and methods of basic science techniques and methods of basic science for various analysis of exhibits associated with crimes. The scientific examinations of a forensic scientist adjoins a missing link or strengthens a weakly in the chain of investigation by furnishing an impartial and establish evidence, thereby helping the court to come to a conclusion regarding the criminals and their punishments. The field of study or examination of forensic scientist is very wide, diversible and unpredictable. Generally the duties and responsibilities of forensic scientist are very hazardous, onerous and risk bearing. Because they are to deal with the material exhibits pertaining to various nature of crimes such as murder, rape, blood, saliva, firearms, ammunitions, explosives, and explosives substances, liquor, hashish, opium, adulterated petrol, kerosene, diesel, etc. and other chemical vehicles involved in accidents, various types of paints. Weapons used in burglary, arson, etc. different types of poisons and poisonous substances, hair, skeletal remains and other plant or animal remnants. Apart from these, forensic scientists are also to examine the forged signatures and documents along with the photographic analysis of all materials exhibits. Any material exhibit encountered in the way of investigation needs

to be thoroughly examined to prove or disprove its association a particular crime or criminal.

Firstly, generally the material exhibits which are obtained at the scene of crime are examined by the scientist of this division. Besides comparative studies of various impressions and marks of tools etc. used in commission of crime are also made in this division. Determination of forced engine or chassis marks or restoration of an erased number upon metallic dates are also determined by the scientist of this division. Analysis of paints and glass articles, stamp impressions of forest authorities can be examined by these scientists to establish the facts for the determination of clues of commission of crimes and criminals.

Secondly, the scientist of forensic chemistry is also equally busy determining clues of crime and detection of criminals by their various methods of analysis. For instance it is the forensic chemist who has to determine purity of petrol, diesel and kerosene from samples. They are also to determine the quality of liquor, opium, ganja and other chemicals, analysis of explosive and the like. From their various methods of analysis, they have to establish facts basing upon which the investigating officers can detect the clues of a particular crime.

Forensic biologists have also been playing an important role in examining biological exhibits oriented with crime. It is the biologist who has to analyze the biologist material exhibit starting from a micro organism to a higher plant or an animal and also their parts and products. From the skeletal remains, a biologist has to determine the sex, origin, stature, and age of the deceased. He is to identify from the skull by using superimposition method and thereby help the investigating authority in coming to a conclusion with the regard to a particular crime. In case of a suspected death case, the biologist is to ascertain the cause of death. He is also to analyze various poisonous plant materials in cases where plant poison is administered in the commission of crimes.

A Serologist plays equally important role in establishing facts in respect of various crimes. In case of a murder where knife and other weapons are involved, it is the serologist who is to ascertain whether the particular weapon is stained with human blood or not. Form the findings of a serologist, the investigating officer can get a definite clue in a particular case, depending on which the investigating officer can identify the culprit

of the crime. It is the serologist who has to establish the facts of disputed paternity cases by testing the blood group in question.

Now, coming to the ballistics branch of forensic science it may be stated that a ballistic expert is the only person who ascertains whether a particular fire arm was used or not while committing a crime. He is also to examine the types of fire arms and ammunitions used in commission of a crime. He has also to establish the facts with regard to firing ranges, distance, direction, and angle of firing. After obtaining the opinion of a ballistic expert the investigating officers can come to a reasonable conclusion in respect of a particular crime. Apart from the different fire arms and ammunitions a ballistic expert is also to examine the explosive substance which is nowadays very often used for committing heinous crimes.

A toxicologist determines the clues of the crime in which poison is used. In any such case, be it accidental suicidal or intentional, a toxicologist analyses the viscera and other relevant materials from which he establishes the quality and quantity of poison used. From the report of a toxicologist, the investigating officer can usually obtain vital clues for detecting the criminals involved. Similarly, the Court also gets positive evidence for coming to a conclusion in any particular case.

A document expert examines the various types of documents directly or indirectly involved in a forgery case. The forgery cases may be of different types, but all these are examined by the handwriting expert. From the report of a document examiner, the investigating agency can definitely detect the real culprit of a particular case. Apart from the forged signatures or documents, a handwriting expert often gives opinion on typed papers, time of writing and the age of the ink used for writing a questionable document. So the opinion of a handwriting expert also helps the court to a conclusion in meeting the ends of justice.

Like all others branches of science, personnel of the photography division also play a vital role in determining clues of crimes and detecting the criminals. It is the forensic photographer who establishes the connecting link of various clues of a crime by their Photographic evidence. In case of a crime where the facts of erasure is involved, it is only the photographic evidence by which the facts of easement can be established with

any degree of precision. Thereby they are also helping the courts to come to a definitive opinion with regard to the case.

From the above discussion it can be concluded that the forensic scientist by the vary nature of his work is duty bound for the establishment of justice for the society. As a matter of fact forensic scientists are playing a vital role in reducing the potentiality of crime and also in determining the root causes of crime in our society.

4.4 Difficulties in the detection of crime

There are some crucial difficulties which are faced in the detection of crime and grievous criminals which are mentioned in the following discussion:

Insufficient inquest:

There is being undue delays in visiting the scene of crime by the police officer due to being engaged in another case or for some other reason. Valuable time is thus lost in obtaining a clue to the crime. Even if he reaches the scene early, he may depend on witnesses, who may have some motive in concealing the real facts. the report may be insufficient for want of knowledge and training and ma mislead the medical officer. Frequently, the police have no information to give, as witnesses do not come forward to volunteer a statement because of the fear of Courts or other reasons.

Rapid disposal of dead bodies:

The bodies are cremated or buried within a few hours after death, according to the religious customs. The body may be concealed in a jungle, where vultures, jackals, dogs, etc., may soon make it unidentifiable, or the body may be thrown into a river, canal, pond, etc.

Untrustworthiness of evidence:

Even when a person dies of natural cause, a false charge may be made against his enemy by attributing his death to some previous quarrel or fight. A person may disappear and after a few days a decomposed body lying on the outskirts is claimed as the body of the missing person and a false charge of murder is made against the enemy.

4.5 Doctor's Criminality

Bribery, corruption and abuse of power have become inevitable part of all types of institutions of Bangladesh; health sector is not an exception to this. Patients of different government hospitals do not get medicine, which they are supposed to get. Rather some officials of the hospitals sold the medicine at a lower price to the surrounding medicine shops. Through this process lakh taka's medicine of Dhaka Medical College Hospital are trafficked and sold.[10] In 2005, health sector, among others, was identified as one of the most corrupt sectors. Health Complex (61.9%), Medical College Hospital (17.06%), Officer of family Planning (5.95%), officer of Civil Surgeon (1.98%), specialized-hospital (1.59%), private clinic/doctor (4.37) were the sub-sectors to be involved in corruption.

Among different types of corruption in health sector, the most prevalent were misappropriation (43.7%), negligence of duty (31.1%), abuse of power (11.1%), bribery (8.7%), and cheating (2.4%), in this sector, the first class officers were mostly involved in corruption, who constituted 62.4 percent.

Doctors are said to have involved in money-making malpractices, such as prolonging treatment, issuing false medical certificates, helping in illegal abortion, giving simulated expert opinion, and referring patients to diagnostic centers, from where they get regular commission. Some medical offices prepare annual budget of government hospitals, showing cost, many times more than the actual one of various medicines and other medical instruments. Which account for 100 crore taka loss of the national treasury?[11]

A doctor may be asked anytime by the court for his opinion about medical knowledge relating to a particular matter. By knowing Forensic medicine a medical man comes to know what is lawful and what is unlawful. So, he can perform his medical work within the limit of law. By knowing Forensic medicine a medical man comes to know his own code of conduct that is what to do and what not to do.

Doctors of all categories need fair knowledge of Forensic Medicine. Doctors treat patients irrespective of origin, so they get some victims of criminal act to treat. Gynae

[10] The Daily Janakantha, October 25, 2002.
[11] The Bhorer Kagoj, November 28, 1998.

doctors treat cases of criminal abortion, Surgeons treat victims of criminal wound, and physicians treat poisoning cases. In all such cases the doctor will be required to appear as an expert witness in a court of law. Often the doctor is the chief source of evidence upon which legal decisions are made. His effective use in the administration of justice is an absolute necessity for a peaceful and orderly society. Forensic medicine prepares the doctors to face such situations with efficiency. A doctor comes to know his own code of conduct – what to do and what not through Forensic medicine. Fair knowledge is also needed to safeguard a doctor himself from criminal cases.

Chapter 5

LEGAL PROCEDURE

5.1 How doctors become involved in legal action

The doctors become involve in legal action by a number of ways like, as the ‘defendant’ in either a criminal or civil action. This may be nothing to do with their medical activities, or as when a doctor is accused of reckless driving, theft, murder etc. – or when sued in a civil action for debt or defamation. However, many actions will arise from medical practice, such as criminal abortion or medical negligence, or as a ‘witness’ in a legal action which is far more often, not being involved as plaintiff or defendant, but appearing to provide information or opinion to assist the legal processes.

Where the doctor gives some purely factual evidence of something he did or saw during his medical work. For example, he may have sutured a scalp injury after a fight or diagnosed epilepsy in a driver who illegally obtained a driving license. An ‘expert witness’ – A specialist or senior doctor who assists the law by giving an expert opinion on certain facts, even if he has no knowledge of the particular circumstances. For instance, a consultant dermatologist may be give an opinion upon carcinogenic properties of a certain chemical.

5.2 Forensic Medicine & related laws

Legal procedures deal with how doctors can help the courts in connection with offences against the person or preserve the rights of the individual, or of the community.

There are a lot of laws which are related to the forensic medicine indirectly. Among them some of those laws are directly involved with forensic medicine, viz. the Code of Criminal Procedure 1898, Penal Code 1860 and Evidence Act 1872. The Criminal Procedure Code is a Procedural law and actually it just provides the mechanism of

providing the punishment in relation to any criminal. And Penal Code is a substantive law and the all punishment and the nature of punishment of an accused are stated. On the other hand the Evidence Act provides the rules regarding the taking of evidence.

5.3 Application under Criminal Procedure Code

It provides the mechanism for punishment of offences against the substantive criminal law. It formulates police duties in arresting offenders, dealing with absconders, in the production of documents, etc. and in investigating offences. It provides for different class of courts. It deals with actual procedure in trials, appeals, references, revisions, and transfer of criminal cases.

5.4 Application under Penal Code

It deals with substantive criminal law of Bangladesh. It defines offences and prescribes punishments.

5.5 Application under Evidence Act

It is common to both the criminal and civil procedure. An inquest is an inquiry or investigation into the cause of death. It is conducted in cases of suicide, murder, and killing by an animal of machinery, accidents and suspicious deaths. Two types of inquests are held in Bangladesh:

1. The police inquest.
2. The magistrate inquest.

The police officer making the inquest is known as investigating officer. When the officer-in-charge of a police station receives information that a person has committed suicide, or has been killed by another or by an animal or by machinery or by an accident or has died under circumstances raising a reasonable suspicion that some other person has committed an offence, he immediately gives intimation there of to the nearest police station empowered to hold inquests, and proceeds to the place where the body of such deceased person is. In the presence of two or more respectable inhabitants of the neighborhood makes an investigation, and draws up a report of the apparent cause of death describing such wounds, fractures, bruises, and other marks of injury as may be found on the body, and stating in what manner, or by what weapon or instrument, such injuries appear to

have been inflicted. The inquest report is then signed by the investigating police officer and by the witnesses. If no foul play is suspected, the dead body is handed over to the relatives of disposal. In cases of suspected foul play or doubt, the body is sent for post-mortem examination to the nearest authorized government doctor, together with a requisition and a copy of the inquest. The report is forwarded to the Magistrate. The police officer may summon persons who appear to know the facts of the case for investigation purposes. The summoned person is bound to attend and answer question put to him.

On the other hand, Magistrate's inquest is conducted by a District magistrate, Sub-divisional Magistrate, or any other Executive Magistrate, especially empowered by the State government, such as Collector, Deputy Collector or Tahsildar (Executive Magistrates). It is done is case of (1) death in prison, (2) death in police custody, and while under police interrogation, (3) death due to police firing, and (4) dowry deaths. In any case of death, a Magistrate may conduct an inquest, instead of or in addition to the police inquest. A Metropolitan Magistrate can also conduct an inquest.

Chapter 6

MEDICAL EVIDENCE

6.1 Aspect of medical evidence

Evidence means all legal means, which help the evidence to be accepted by the Courts, it must be properly identified as to what it is, and where it was found. The evidence of eyewitnesses is positive. The evidence of doctor or an expert is only an opinion which is corroborative.

It is a method to verify the actual possession of an object from the time it was first identified until it is offered as evidence in the Court. Each specimen when obtained should be labeled with the victim's name, the time and date. If the material is handled by another person, that person must give receipt for the material and be included in the chain of custody. The evidence must not be damaged, contaminated, or altered in any significant way.

Types: (1) Documentary: It included all documents produced for the inspection of the Court. The contents of the documents may be proved either by primary or by secondary evidence. Primary evidence means the document itself produced for inspection of the Court. Secondary evidence means certificate copies, copies made from the original by mechanical processes, copies made from or compared with the original, oral account of the contents of documents. Evidence must confirm to the matters in issue, and is admitted on the basis of relevance and admissibility.

(2) Oral

(3) Direct: Evidence of a fact which is actually in issue, e.g. an electric blanket that has caused injury, prescription, or a consent form.

(4) Indirect or Circumstantial: It is not direct testimony of an eye witness, but has a bearing upon the fact of the other and subsidiary facts which are relied upon as consistent, e.g. in case of alleged murder of A with a knife on that day at place, a few minutes before the murder.

(5) Hearsay: It is evidence of which the witness has no personal knowledge but he repeats of what he has heard others say.

6.2 Medical certificates

They refer to ill-health, insanity, death etc. they are accepted in a Court of law, only when they are issued by a qualified registered medical practitioner. The certificate of ill-health should contain exact nature of illness, duration of illness and probably period of expected absence. The signature or left thump impression of the patient should be taken at the bottom of the certificate. A medical practitioner is legally bound to give a death certificate, stating the cause of death without charging fee, if a person whom he has been attending during his last illness dies. Death certificate should not be issued by a doctor without inspecting the body and satisfying himself not be delayed, even if the doctor's fees is not part. The certificate should not be given if the doctor is not sure of the cause of death, or if there is the least suspicion of foul play. In such cases, the matter should be reported to the police, issuing or signing a false certificate is punishable in Bangladesh.

6.3 Medico-legal reports

They are reports prepared by a doctor on the request of the investigating officer for this guidance, usually in criminal cases, e.g. assault, rape, murder, poisoning, etc. the examination of an injured person or a dead body is made, when there is a requisition from a police officer, Magistrate or Coroner. These reports consist of two parts: (1) the facts observed on examination (all relevant, objective discretions including important negative findings). (2) The opinion draws from the facts. These reports will be attached to the file relating in the case and the file is produced in the court. It will not be admitted as evidence, unless the doctor attends the Courts and testifies to the facts under oath. The reports to avoid any loose wording or careless, statement, for the defense will take advantage of it. The doctor should sign or initial at the bottom of each page, if the report

exceeds one page in length. The report should give the date, time and place of examination and the name of inviduals who identified the person or the dead body. The opinion should be based of the facts observed by him, and not on information obtained from other sources. In an injury case, if it is not possible to give an opinion immediately, the person should be kept under observation, and necessary investigations should be done before giving the report. The report should show competence, lack of bias and offer concrete professional advice. The report should be made soon after the examination, it should be comprehensive, legible and it should avoid technical terms as far as possible. Relevant negative information should also be given. Clothing, weapons, etc., sent for medical examination should be described in detail scaled and returned to the police, after obtaining a receipt.

6.4 Dying declaration

It is a written or oral statement of a person, who is dying as a result of some unlawful act, relating to the materials facts of cause of his death or bearing on the circumstances. If there is time, a magistrate should be called to record the declaration. Before recording the statement, the doctor should certify that the person in conscious and his faculties are normal. If the condition of the victim is serious, and there is no time to call a Magistrate, the doctor should take the declaration in the pre-sense of two witnesses. The statement can also be recorded by the village headman, police or any other person, but its evidential value will be less. When recording the dying declaration, oath is not administered, because of the belief that the dying person tells the truth. The statement should be recorded in the man's own words, without any alteration of terms or phrases. Leading questions should not be put. The declarant should be permitted to give his statement without any undue influence, outside prompting or assistance. If a point is not clear, question may be asked to make it clear, but the actual question and the answer received should be recorded. It should then be read over to the declarant, and his signature or thumb impression has taken. The doctor and the witness should also sign the declaration, if the statement is written by the declarant himself, it should be signed by him, the doctor and the witnesses; the statement made must be of fact and not opinion. if the declaration is made in the form of an opinion or conclusion, questions should be asked by the

recorded to bring out the facts that are the basis for the conclusion. While recording the statement, if the declarant becomes unconscious, the person recording it must record as much as information as he has obtained and sign it. if the dying person is unable to speak, but is able to make signs in answer to questions put to him, this can be recorded and it is regarded as a "verbal statement". The declaration is admissible not only against an accused who killed the declarant, but also against all other persons involved in the same incident which resulted in his death. In Bangladesh, if the declarant is in a sound state of mind at the time of making the declaration, it is admissible in Court as evidence, event if the declarant was not under expectation of death at that time. The declaration is sent to the Magistrate in a sealed over. It is procured at the trial and accepted as evidence in case of death of the victim in all criminal and civil, cases, where the cause of death is under enquiry. The person recording the declaration will have to give evidence in the Court to prove it. If the declarant survives, the declarant is not admitted but has corroborative value, and the person is called to give oral evidence.

6.5 Conduct and duties of the doctor in the witness box

The following rules help a doctor in the witness box:-

(1) Be well prepared with the details of the evidence before entering the box; anticipate certain likely questions on it and be prepared to study the literature on the subject about which he is likely to be cross-examined.

(2) Take all records and relevant reports that may have to be quoted in the box, e.g. autopsy report, photographs, X-rays, toxicology and blood grouping reports, copy of the death certificate, drawings or diagrams, special reports swabs or smears, culture studies, serology and various receipts to prove the chain of custody of the items of evidence, the photographs are useful in the Court:

(a) To refresh memory of the findings,

(b) To establish the identification of the deceased.

(c) To explain the findings conveniently, and

(d) To provide true-to-life picture of the investigative findings the records should be in chronological order, and the doctor should have full knowledge of the his file.

(3) Be well dressed and modest.

(4) Do not discuss the case with anyone in the Court, except the lawyer by whom you were asked to testify.

(5) Stand up straight.

(6) Never attempt to memorize, the law allows refreshing the memory from copies of reports already submitted or from case notes and similar records made at the time of examinations. An expert may refresh his memory by reference to professional treatises. A writing which is used to refresh the memory of a witness must be shown to the opposite party, if he requires it. Such party may cross-examine the witness thereupon.

(7) Be relaxed and calm and not frightened or nervous.

(8) Speak slowly, distinctly, and audibly so that the judge can record your evidence. Look people in eye when you speak, for it gives the impression of honesty.

(9) Speak with assurance; be confident but no over-confident or arrogant.

(10) Use simple language, avoiding technical terms to the best of you ability.

(11) Avoid superlatives and exaggerations, e.g. enormous bruise, frightful injury, savage blow, most agonizing pain etc.

(12) Do not fumble in referring to case notes, records, etc. The less you fumble, the more the Court is likely to be impressed by you.

(13) Address the Judge by his proper title, such as "Sir" or "Your honor".

(14) Avoid difference between you record and your testimony. if an error or slight contradiction has been made in the testimony, admit and correct it.

(15) Be pleasant, polite and courteous to the lawyer. Appearance, professional manner, and general behavior are important.

(16) Do not underestimate the medical knowledge of the lawyers.

6.6 Collection of evidence and preservation of medico-legal evidence

In order to collect evidence the following things need to be considered:

(1)Collect every article even remotely likely to be helpful in the investigation. Note the source and the relative location of the exhibits at the time they were recovered.

(2)Collect any item likely to carry fingerprints,

(3)Use separate container for each item.

Every article collected must bear identifying marks. Two marking methods are commonly used, viz. direct, in which mars are put on the item of evidence itself and indirect, in which notations of identification are placed on a container should be labeled. The disadvantage of attaching a tag is, it can be accidentally turn off or intentionally removed as the evidence is handled or examined forensically.

(5)Exhibits must be protected against mutilation, alteration, or contamination. If any alterations has been made between the time the exhibit was recovered and the time it was offered in evidence. This must be justified by the laboratory technician.

Regarding the preservation of medico-legal evidence it must be obtained in a legal manner. Then it must be relevant to the issue. The chain of custody of the item must be intact and known. It must be evaluated by qualified experts. For preservation of physical evidence it is mandatory to use:

(1) Card board "pillbox" type of containers.
(2) Envelopes.
(3) The pharmacist folds using paper.
(4) Film containers (35mm).
(5) Plastic vials and jars for small samples, e.g., hair, bullets, blood and organs.
(6) Plastic bags for organs, clothing and large articles, and to cover the hands or other parts of the body.
(7) Larger plastic bags for bodies.

The excessive handling of the evidence should b avoided which is gathered as it may cause contamination or loss of transitory materials.

Chapter 7

CONCLUSIVE NOTE

Forensic science is the application of the scientific method to help the judicial system. As a forensic scientist one must be impartial, and only draw conclusions based on what the evidence shows. A forensic scientist might be asked if other scenarios are possible, and even if other scenarios are as strongly supported by the evidence as the scientist's opinion, the expert must admit it when other scenarios are possible.

Today forensic scientists are claimed by courts, law enforcement agencies, defendants, and plaintiffs to analyze evidence and report conclusions. Sometimes forensic experts are asked to be an expert witness in court and report those findings to a tried of fact.

Always it has to remember that when forensic experts are in the courtroom they are impartial to either side, regardless of which side listed them as a witness and regardless of the demeanors of the lawyers during the court session. While forensic expert may be at the top of game in the laboratory, in the courthouse the lawyers have the upper hand. They know the rules, and forensic expert little recourses once on the stand. Expert hopes while on the stand to escape a serious verbal beating is to have a good lawyer step in for him. This is rarely the case. You are on your own, and allowing yourself to get emotional during a tough cross-examination will only encourage the lawyers behavior, and probably get the word out to other lawyers that you are "easy prey" the stand. Keep calm, keep professional, get some good training on testimony skills to learn how to defeat/disarm a vigorous cross-examination.

Medicine is a biological science with the variability inherent in biological matters. One thing that makes medicine so difficult is that there is no such thing as the average man. We can only say the reading is “Within the range of normal”. Forensic medicine is

not an exact science. Unexpected results are produced due to biological variations. In every case, there is an element of uncertainty, and absolute proof is a rarity in any medical problem. The most extraordinary events occur in medico-legal practice, and a careful evaluation must always be made to ensure that dogmatic statements by medical witnesses do not mislead the investigating officers. No possibility is wholly excluded in medical experience. Doctors should bear in mind the essential difference between probability and proof. The medical witness should not be dogmatic about his opinion, and also lawyers should not expect him to be so. There should be reasonable in their opinions and should not overstate the likelihood of a relationship between cause and effect. The doctor should be ready to defend every finding and conclusion on the report on clinical and scientific grounds. He should be aware of professional and scientific viewpoints which might differ from his, and should be familiar with the latest scientific literature in relation to the subject involved. For the purpose of illustrating and clarifying his testimony, the medical expert may employ photographs, maps, diagrams, chart, X-rays, skeletons, models, etc.

Forensic medicine can be mastered only by an extensive practical experience acquired by an application and study of medico-legal problems. Courts of law are open to the public. Medical students and newly qualified doctors should attend the Courts, where they can follow the proceedings, hear the evidence given by medical witness, and note the questions put and replies given. This help to lessen the painful experience of giving evidence. Forensic pathologists have an ethical obligation to contribute to further knowledge, research and education in their field. He should avoid special efforts to “cover up” medical negligence or intentional wrong doing.

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