

The Application of Forensic Techniques for the Discovery and Proof of Crimes against Physical Integrity

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Abstract. Scientific techniques of crime detection, refers to a set of scientific methods by which experts seek to examine the crime scene and discover left traces of the crimes and find possible criminals. The present article reviews the applications of the techniques for use in connection with the alleged crimes against the physical integrity. Although the effects of the alleged crimes against the physical integrity are usually visible, but the determination of the link between criminal conducts and consequences is a complex task; thus there is a need to forensic techniques. Forensic techniques in connection with the alleged crimes against the physical integrity are used in order to discover human remains and objects buried, to identify victims, to determine the cause and manner of death and to prove sexual offences. In the present paper, both descriptive and analytic methods are used; the descriptive method is used for explaining the scientific methods of crime detection and the analytic one is used for analyzing the legal validity of those methods. The main aim of this paper is the clarification of scientific techniques for the discovery and proof of crimes against physical integrity. Forensic sciences can be used in three main stages; first the establishment of the criminal conduct and its effects, second the determination of the offender and third identification of the victim. The development of scientific means and testing in the context of crime detection has led to a higher quality of forensic techniques.

Keywords: Forensic techniques, Crimes against the physical integrity, Crime detection, Forensic experts, Identification, Physical evidence.

1. Introduction

Employing techniques of crime detection is considered inevitable and necessary. Techniques used for the detection of crimes against the physical integrity are very broad. In fact, the extent of this application is as large as the variety of scientific disciplines. The special features of this kind of crimes, including interaction between criminal action and external positions and conditions necessitate the evaluation of various factors; causal link is one of the essential issues which should be taken into account. Forensic techniques can be very useful in this respect. However, most such techniques for the detection of crimes against the physical integrity require the cooperation of various specialists and experts for success. Since crimes against physical integrity affect human bodies, the function of medical sciences and other fields of physical knowledge are very important and decisive. Forensic techniques are essential in gathering physical evidence for the indictment, arrest, and prosecution of criminals. Forensic techniques are also used to identify the remains of victims. There are four main applications of forensic techniques regarding crimes against physical integrity. They are the discovery of human remains and objects buried the identification of victims, the determination of the cause and manner of death and the proof of sexual offences. In the present article, those applications will be discussed accordingly.

2. The discovery of human remains and objects buried

The discovery of remains of the bodies at crime scenes and objects that are hidden or buried is the task of forensic Archaeology. "Forensic Archaeology techniques which are performed in this area (without

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limitation) are:

- The survey of changes in the ecological environment in search of buried bodies
- Mapping of the protractor
- Searching and electromagnetic geophysical investigations such as the use of metal detector
- To describe and analyze spatial data
- To use of heavy equipment, including drilling
- Archaeological discoveries from the field
- To identify the primary structure of skeletal remains
- To collect record and preserve the objects found
- Digital photography
- Sampling of soil, plants and insects
- Collection and preservation of bone remains and evidence of them.” (1)

However, using routine methods in forensic archeology in order to discover human remains and objects can have a positive value and may help scientific analysis of the remains and objects. However, during discovery stage and in order to collect material evidence, Comments from other experts is necessary for the success of forensic archaeologists. For example, forensic anthropology and forensic entomology are supplements of Archaeology. Forensic anthropology, through the identification of human remains and animal ones helps forensic archaeology and forensic entomology by determining time of death, will complete researches of forensic archaeologists. In most European countries, like Scandinavia or Northern Europe at least, although archaeological and physical anthropology are two separate field and are described as two different areas Archaeologists need anthropologists. “Accordingly, in most European countries the legal separation between forensic anthropology and archeology is quite common. However, in cases where the skills of archaeologists are inadequate, the presence of experts in the field of hard tissue, are needed and also forensic anthropologists' participation will be necessary.” (2)

3. Identification of Victims

Generally, the identification of the corpse or skeleton is the most important issue for the experts who are trying to verify it. Today, for the identification of human remains, there is a variety of techniques which depends on the terms and conditions of the bodies that should be investigated. “One of the methods that are commonly used and yet not so reliable are the investigation of special features such as scars, tattoos and the like. In contrast, a decisive and reliable indicator such as fingerprints and dental largely survives the primary, and they depend on access to records of death.” (3) But the main problem is that if a person's dental records are not present or members of his/her relatives are not aware of it, and or the teeth are not known, this cannot be used for the identification. Determination of age, gender and ethnic affiliation can also help identify victims. In the past, the true age was only based on morphological features (surface anatomy) of bones and teeth and the possible changes caused by aging. But gradually in the light of increasing awareness of the new results-based analysis of bone structure and technical testing, promoting new bone hard tissue components analysis was possible. During this research, scientists found links between the ingredients, size and structure of bones and teeth. Ethnic identity can also be effective in individual identification. The recognition of racial differences in femoral anterior curvature of bones and joints depend on the angle between the bulges. There is evidence that features common among members of an ethnic group can be indicative of racial affiliation. However, given the similarities between ranges of different ethnic groups, including blacks, whites and Asian ethnic groups which is a diagnostic procedure, is a confirming indicator. In other words, the results can be considered alongside other evidence to confirm evidential circumstances and other reasons.

If for any reason it cannot be determined through the study of bones and other ways that who is the victim and his/her relatives are not able to identify him, the last and only way that remains, is DNA testing. “In this way, blood is taken from a kin of the victim will be compared with samples taken from bones and teeth of the victim. If the result is positive, statistically a 99/99% chance to be the remains discovered belongs to the person concerned.” (4)But legally, it remains to be conclusively presumed to be conceived as the person concerned and all the legal effects arising from the death of the deceased and survivors will follow.

“However, contrary to popular belief, getting DNA from bone tissue, which over time has been corrupt in the soil, may still be very difficult.” (5)

4. Determination of the cause and manner of death

One of the most complex and most important steps expected of a pathologist is proving the cause of the death of those who have died long time ago. Determination of the cause of death using the scientific method of forensic pathologists is their main task and they perform it with the help of forensic anthropologists. “The distinction of pathology and anthropology is that in forensic pathology, soft tissue should be studied and analyzed to find the cause of death, while the subject of legal anthropology is hard tissue (teeth and bones).” (6)

In addition, in forensic pathology, the autopsy to determine cause and manner of death is important. “The forensic autopsy to determine the cause and circumstances of death are reported to authorities. The results of the autopsy must be clear and rational.”(7)

5. Proof of sexual offences

In the investigation of rape, a crime scene has a decisive role in giving credibility to the evidence and documents. “The purpose of examining the crime scene is the accurate collecting physical evidence and documents. This research is an integral part. Each point refers to the crime scene can be a clue in the investigation of rape; the body can be the scene of the crime committed and the effects of injuries caused by rape, blood or other fluids can be considered as a reason.” (8) In examining the crime scene in rape, blood spots may exist in different forms:

- Blood on body victim or around
- Stains and traces of blood onto wall
- Stains and traces of blood onto floor

“However, those who study on blood spots may face difficulties in practice. First, it is often contaminated blood or other fluids to be composed. This can affect the detection of blood spots. Secondly, most blood spots may be dried in a long time.”(9) Other biological evidence that is decisive in proving rape is saliva. Saliva is composed of enzymes that can be used to adapt a particular blood group was tested. “The existence of the saliva can be easily diagnosed on the basis of statements of victims or witnesses. For example, witnesses state that the victim or the accused may have to bite. Eyewitness information that is available to judicial authorities or researchers may be confirmed by final inspection.”(10) DNA in semen test can also be used as a way to identify the perpetrator. “The importance of DNA is resulted from the fact that every living cell contains DNA. Any biological material left at the crime scene, and potentially in the test would be valuable. The point that should be considered in regard to sexual violence is that effects and consequences of sexual violence will remain long after the crime; Physical and psychological suffering caused by forced pregnancy and the birth of unwanted children, depression and mental disorders are the most common effects and consequences. Thus, with the help of forensic psychology, mental disorders caused by sexual violence, can be recognized. In addition, psychology can determine the legal accuracy of the statements of witnesses and help victims of sexual violence during judicial proceedings and thereby confirm or reject the validity and finality of this statement.

6. Conclusion

Finding the fact in crimes against physical integrity is not possible without using forensic techniques. In order to find the fact in every case, there is a set of methods which are usually inter related. Forensic sciences can be used in three main stages; first the establishment of the criminal conduct and its effects, second the determination of the offender and third identification of the victim. The development of scientific means and testing in the context of crime detection has led to a higher quality of forensic techniques; DNA testing is a good example in this respect. However Forensic experts should take into account every trivial thing that may be relevant in the course of the criminal conduct.

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