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# Forensic Anthropology: An Uncharted Tool in Criminal Investigation

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## ABSTRACT

*This paper deals with the intersection of criminal law and science. Our provisions as contained in the code of criminal procedure and evidence have been amended repeatedly but the same have not kept up with the latest developments. Science and technology has developed at an extreme rate since the end of 20th century may it be fingerprints or DNA. The science dealt in the essay originates from archaeology, which branched into anthropology and eventually gave birth to forensic anthropology. The applications of forensic anthropology are wide and not only in the cases of mass disasters or mass grave but is also an important tool for cases such as missing persons, kidnapping or even murder. Any crime has the elements of a victim, mens rea, actus rea and the perpetrator. Forensic anthropology helps in identifying the victims ascertain the nature of injuries helpful in the establishment of the concept of actus and mens rea. The science is like any other expert evidence and the same can be found applicable to conclude criminal investigation. This essay provides a new avenue in criminal investigation to take help from forensic anthropology to aid the investigation. Cases in our countries that have actually used this science are a few and the number is alarmingly low. The science uses the various biological factors and has very low error rate thereby affirming the possibility of its usage. Though it cannot be stated that science is infallible it has its own errors and limitations, which is covered in this essay. The main aim of the essay is to open the minds of readers into the possibility of using forensic anthropology in criminal investigation.*

**Keywords:** Forensic Anthropology, Criminal Investigation, Identity, Expert Evidence

## I. INTRODUCTION

Forensic anthropology reflects a diverse area of science that is rapidly developing. Multitude of applications involve recovery, biological profile estimation, period after death evaluation, evidence of wrong doing, reporting, and leading to identification. Each of the fields have its own approach, promoting scientific literature, and constraints. This diversity eventually leads

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to practitioners being required to defend their interpretations. Anthropology is a broad field, defined as the study of humankind (from the Greek *Anthropos* “man” and *logia* “study”). Anthropology is sub divided into four segments: cultural anthropology, linguistic anthropology, archaeology, and physical anthropology. Specifically, the study of evolution and diversity of physical (or biological) anthropology is of humans, the human lineage in particular. A particular sub-field of physical anthropology is termed as ‘Forensic Anthropology’ which can be further defined as the application of the system and theory of anthropology to issues of legal concern, in particular those relating to skeleton recovery and analysis. Forensic anthropology practice also includes estimating the gender, ancestry, age, and stature of unknown individuals from skeletal material. This description of approximate biological parameters is referred to as the biological profile, which is compared to records of missing individuals in an effort to classify the individual to whom the skeletal remains belong. Forensic anthropologists also concentrate in the search for and recovery of human remains, the study of skeletal trauma and other modifications that may be important to the cause and nature of death of the individual, and the facilitation of personal recognition by identifying characteristics and characteristics that may be associated with a specific individual. In other words, Forensic Anthropology focuses on identifying human skeletal remains in a legal context. It is expected that forensic anthropologists will examine human skeletal remains and decide the biological profile of the deceased. In the process of identification of human mortals, Forensic Anthropology runs corollary to the medical examiners and the law enforcement agencies. A subject like Forensic Anthropology is growing in various parts of the world in which India is also included. In India, medico legal cases are primarily carried out by the police agency along with the Forensic medicine Department experts, who then take it further in order to ascertain the cause of the unnatural death of the deceased. Even though the Forensic Department do their jobs efficiently but the irony lies that the services of trained forensic anthropologists in cases of unnatural deaths is still goes unrecognised in India.

## **II. APPLICABILITY OF FORENSIC ANTHROPOLOGY**

Application of this science often traced back from identification of the war victims during the Korean War in 1950. The Boxing Day Tsunami 2004 was recognized to be successfully investigated with the assistance of the forensic anthropological techniques, where medicolegal practitioners, with their knowledge, skill and wit and considering the facts and circumstances which were laid ahead of them tactfully with some informal training and little public research played limited role in medico legal cases. Forensic anthropology is

categorised as a difficult and developing field of science. It is often applied in various ways like, evidence retrieval creating a biological profile and. Forensic anthropology falls under the ambit of physical anthropology and therefore the application of anthropological techniques and theory to legal issues, particularly people who relate to the recovery and analysis of the skeleton. Forensic anthropology has continued to demonstrate its usefulness to the sector of mass disaster cases. The increasing numbers of specialists during this area apply their knowledge, skills, and research abilities to all or any aspects of disaster victim recovery and identification, effects management, and family assistance. Mass disasters lead to many issues as the bodies are many and the crucial task involves informing the near and dear ones various factors of a human body. The sub division of the bodies found into genders and age groups is the task at hand in such situations. Disaster management agencies also take help from forensic anthropologist as the same, in cases of death, the trauma suffered by the victims can be ascertained and therefore the compensation can be provided accordingly. One among the prominent roles of Forensic Anthropologists during mass disaster situations is that the recovery efforts because it requires an intricate organization and speedy recovery of evidence. In cases like 2002 Bali bombing, the identification of the disrupted victim remains was done on the idea of anthropological analysis enabling to understand about the location from where DNA is to be analysed thanks to the close proximity of the victims to the seat of explosion. Thus, helping identification. Latur earthquake, 1933, subsequent case that led forensic anthropology gain further importance as a forensic analysis technique. The role of forensic anthropologists evolving every day with the increment within the techniques used. Identifying a victim is the major concern during a mass fatality disaster may be a cumbersome process which may only be made successful by using various interdisciplinary approaches having anthropology together of the main assets.

### **III. ADMISSIBILITY OF FORENSIC ANTHROPOLOGICAL EVIDENCE IN INDIAN COURTS**

Striking a balance between liability and involvement of forensic anthropology within the legal field is important so as to possess a far better understanding and generate awareness about maintaining a scientific approach within the legal sphere. The role of a forensic anthropologist in legal cases is essentially to follow correct due procedure of scene investigation, the methods laid down for handling and preserve the safety of physical evidence, and maintenance of an entire chain of custody of the evidences that are supposedly admissible in the court of law. These activities got to be undertaken with extreme care and

caution as anthropologists are referred to as expert witnesses where they have an obligation to present a real picture of the report also as presenting and substantiating the facts within the report as expert evidence within the court of law. Expert evidence in Indian courts is admissible under *Section 45 of the Indian Evidence Act, 1872*. It is believed that courts are unable to make an opinion without the assistance of an individual with special skills or experience during a particular subject. When the court needs an assessment during a subject that needs special assistance, the court involves an expert. The assessment or testimony given by a third person is taken into account as a crucial fact if the person testifying is an expert. It had been held within the case of ***Ramesh Chandra Agrawal vs Regency Hospital Ltd. & Ors.***<sup>2</sup>, the court stated that the “*first and foremost requirement for expert evidence to be admissible is that it's necessary to listen to the expert evidence.*” Thereby, oral or documentary evidence by an expert is taken into account as a relevant fact because the test is that the matter is outside the knowledge and understanding of the common citizens. Experts are testified on the idea of the reports that they prepare and people are considered as relevant and admissible. Forensic anthropologists are considered to be experts within their respective field and while testifying they ought to remember of the legal implications and therefore the responsibility that they hold as an expert in the analysis and also shall be conversant in the opposite forensic sciences also. Forensic Anthropologists’ testimonies are usually taken in criminal cases to review the forensic aspect. Applying knowledge domain of anthropology to a forensic question is simply one aspect of the discipline. The legal aspects are equally important. The admission of the forensic anthropologist’s results as evidence depends on adherence to the principles governing recovery, transfer, and storage of physical evidence. Furthermore, court appearance by anthropologists as expert witnesses must meet carefully mandated procedures. The use of techniques and methods of study is governed by rules established by the system instead of those more commonly accepted within the scientific field. A forensic Anthropologist has got to not just manage with the scientific aspect but has bear in mind about the intricacies within the legal arena which deals with forensic evidence.

#### **IV. CASES THAT USED FORENSIC ANTHROPOLOGY AS TOOL FOR INVESTIGATION; HOME AND ABROAD**

Cases in India involving forensic anthropology

##### **1) Sheena Bora Murder case<sup>3</sup>**

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<sup>2</sup> CIVIL APPEAL NO. 5991 OF 2002

<sup>3</sup> CBI special case 117/2015

Skeletal remains were found in Penn Raigadh, Maharashtra it was stated that the remains could be of Sheena Bora as per a previous confession by one of the accused persons. However, the pertinent question was that whether the same was true and here is where forensic anthropology was used. As stated, anthropology could help in identification of gender and age. The anthropologist in this case namely Dr. Mohite took a look at the facial features namely chin, muscle attachments and Gonial angle (angle of the mandible in the skull) and concluded that the remains were of a female, which fit the profile of Sheena. The next question was age and whether that was consistent with Sheena's age at the time of death the humeral epiphysis or the end of any bone that ossifies when full growth is attained which is usually between 21 -25 for females was ossified completely so that could conclude the age being consistent with Sheena. This obliterated the defence that the body someone other than Sheena and paved way for prosecution.

## **2) Periyaswamy vs State <sup>4</sup>**

The facts of this case were that four accused persons were convicted for murder of one Thangraj and buried him. The remains of Thangraj were found late in the course of investigation and were skeletal in nature. The main nature of contentions of the accused was that body was not Thangraj and the technique used for determining the same was also challenged. The forensic anthropological technique used in this case was called Cranio Facial Super-Imposition technique and is popularly called the photogenic superimposition wherein the previous photos of the deceased to be then imposed upon the recovered skull and match the markers established on the body and establish identity. The court thus affirmed the stance of prosecution that the evidence of Forensic anthropology like any other expert evidence under section 45 of Indian Evidence Act, 1872 and proceeded to decide the case as the murder case by saying that the body was in fact of Thangraj.

Now taking a glance on western case studies on forensic anthropology

## **3) September 11, World Trade Centre Attack<sup>5</sup>**

This attack had shaken the whole Nation of America and it fell upon the forensic anthropologists to give identity to the already mangled and fragmented bodies. The recovery procedure was long and the fire was making the bodies be reduced to skeletons though DNA would be used eventually to make the exact identification the primary task in the case was to

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<sup>4</sup>Cri. Appeal 10/2004

<sup>5</sup> United States Department of Justice, Office of Justice Programs. 2005. Mass fatality incidents: A guide for human forensic identification. Washington, DC. <http://www.ojp.usdoj.gov/nij/pubs-sum/199758.htm> (accessed 20/01/2021).

compartmentalize the remains as per gender and age and then match with DNA samples. The anthropologists also had a task to recover and determine whether the perpetrators of the attack were dead, alive or hurt for catching them. The identification period would be longer if the compartmentalization of the fragmented bones was not done and would take years in ascertaining identities of all the victims and attackers. This is how the science of anthropology helped speed up the process of identification in a mass disaster.

#### **4) Human or Animal?<sup>6</sup>**

In a river of California, USA a partial leg was found and the police were unable to determine the origin of the leg whether human or animal. A pathologist, archaeologist and a veterinarian were called for examination of the leg but there arose a difference of opinion the pathologist and archaeologist stated the leg to be human origin while the veterinarian was adamant that it was an animal leg. The police then started investigating the case as a murder and invested many resources for the same the river was searched repeatedly to find more remains but no remains were found. After the extensive operation, the higher authorities opined that a consultation must be taken from a forensic anthropologist for further investigation into cause and manner of death which yielded that the leg was in fact of a black bear and not human. This made the department realize the importance of forensic anthropology and they made it a standard operating protocol for cases involving skeletal remains that a forensic anthropologist has to consulted.

Some Indian courts do consider forensic anthropology to be expert evidence but it is not a consensus opinion and the cases are a few but in western countries courts rely more on such evidences.

## **V. LIMITATIONS OF FORENSIC ANTHROPOLOGY**

Resistance and Ignorance of the Legal System<sup>7</sup>- One of the most common problems that is seen with any new kind of scientific evidence is that it is not accepted by all trial courts where it is generally presented due to either lack of precedents or because of no explicit mention in the legislation. The same leads to confusion and time taken for this issue to resolve the issue and contradictory judgements need to be resolved. Judges are trained in the law and not science and for them to clearly understand testimony training is required which is not frequently given on new developments in the field of forensic science, which is

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<sup>6</sup> A.M. Christensen, NV. Passalacqua, E J. Bartelink 2014 Forensic Anthropology Current Methods and Practices, Chapter 4, Pg. No 111-12,

<sup>7</sup> A.M. Christensen, NV. Passalacqua, E J. Bartelink 2014 Forensic Anthropology Current Methods and Practices, Chapter 15, Pg. No 414-18,

intrinsically connected to criminal cases

Lack of Specialized Education<sup>8</sup>- The doctors and experts that generally handle such cases are doctors who have studied forensic medicine in the medical school or anthropology in general as a subject of Arts stream. The lack of a specialized education in forensic anthropology poses a risk in such investigations and the question of whether a person can be considered an expert is posed again. It is also very pertinent to state here that the regular curriculum of anthropology does not have this subject and even government labs have no specialized posts for such anthropologists. This all in a combination leads to a highly ineffective manner of solving cases and even if the case gets to the court it results in acquittal, as the field is not recognized.

Error<sup>9</sup> – In any scientific technique there is an error rate or colloquially known as the plus-minus estimation. This estimation is categorically divided into three main types firstly practitioner error that is when a person makes mistake in taking down the measurements or places a different scale to name a few and these may be intentional or inadvertent. Secondly, instrument error, which refers to cases where the calibration of an instrument is not done or a part may be broken. Thirdly statistical which expresses a situation where the predetermined statistics are not applicable to a unique case and the same is used still. All of these if not rectified in time may lead to a wrongful conviction or even so may help a guilty person stay out of jail.

## VI. CONCLUSION

Thus, though in India Forensic anthropology is in its nascent stages it is a very necessary tool to establish identity of skeletal remains and to determine whether the crime has happened and sometimes the reason for such crimes and intent considering the subsequent acts of burying the remains as seen in these cases. The main purpose for forensic anthropology right now in our country is to prove the existence of *Corpus Delicti* an element in the chain of circumstances that goes a long way to prove the crime. The other factors that this science helps in establishing is unknown to Indian courts but is very prevalent in other western countries. The science of forensic anthropology has wide applications and many limitations but it cannot be disregarded, as its relevance is very high. In conclusion, it is clear that the scope of this science is more in western countries and that in cases involving such skeletal

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<sup>8</sup> N Baryah, K Krishan, T Kanchan, The development and status of forensic anthropology in India: A review of the literature and future directions *Medicine, Science and the Law* 2019, Vol. 59(1) 61–69

<sup>9</sup>A M. Christensen C M. Crowder S D. Ousley M M. Houck. Error and its Meaning in Forensic Science, 2014 *J forensic Science* Vol 59 issue 1, 123-126

remains the consult of a forensic anthropologist is a matter of practice can be a great step forward for India as well in achieving better criminal investigations. Cases in India are meagre that have used this science but not none and this itself is proof enough that India will catch up on this science in times to come and the road ahead is bright.

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