

# The Nigerian human anatomist and the emerging forensic challenges

## THE HUMAN ANATOMIST

The human anatomist is a trained expert in structure and function of the human body. They are biomedical scientists and educators of the Anatomical form and functions of the body.

They may have received training in a specialized area of human anatomy such as;

Morphology, histology and microscopy, embryology, endocrinology, biological Imaging techniques, physical anthropology, genetics, neuroscience and molecular biology.

With this wide range of options the Anatomist also has a wide range of employment options which include working in laboratories, teaching Medical Doctors, Nurses, lab Scientist, Physiotherapists, Pharmacists or working in factories where medical models are produced. As graduates, they may work in any other government or nongovernmental organization (NGO).

## FORENSIC SCIENCE

This is the scientific method of gathering and examining information about the past. This information most times is important in determining civil or criminal cases in law.

Forensic – Latin (Forensis) meaning of or before the forum. A group of persons are required to give evidence before a public forum.

## ORIGIN

The earliest written account of using the medicine to solve a criminal case appeared in the book of X<sub>1</sub> Yuan Lu – Washing away of wrongs, in 1248.

It is said that about the 16<sup>th</sup> century European Medical Doctors began to put down in paper their observations on the cause and manner of death.

In particular, the French Army Surgeon, Ambrose Pare studied the effects of violent death on internal body organs.

Fortunate Fidelis and Zacchia Paolo, who are Italian Surgeons, studied the changes that occurred in the body as a result of diseases and therefore laid the foundation for Modern Pathology.

However, it was in the 18<sup>th</sup> century that writing on these topics began to appear.

- A treatise on Forensic Medicine and Public Health – By Fodere; a French Physician
- The complete system of Police Medicine – By John Peter Frank; a German.

Because of these writings, criminal Investigation became more evidence based in the 18<sup>th</sup> century.

It was French Police Officer, Alphonse Bertillon who was first to apply physical measurement (Anthropometry) to law enforcement because he was not satisfied by the only methods of; Names and Photographs used in identifying criminals.

Sir William Harschel became one of the first to use finger prints as a way of identification even when he wasn't conversant with the patterns. He worked in the Indian Civil Service.

In 1880, Dr. Henry Faulds Scottish Surgeon in Tokyo Hospital published his first paper in NATURE where he discussed the usefulness of finger prints and proposed a method to record them with ink.

The ideas expressed in Forensic Medicine were to become matured and symbolic in the 20<sup>th</sup> century. In the book Shylock Homes written by Arthur Conan Doyle, he made great use of trace evidence such as shoe and tire as impressions. These are still in use today as a man's stature can be estimated by his sole or shoe impression.

The Science of Forensic Science advanced in the 20<sup>th</sup> century as Alec Jeffreys advanced the use of DNA

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finger printing which uses variations in the genetic code to identify individuals.

Hence, many countries have formed their academics of Forensic Science which are fostering the study of Forensic Science.

- American Academy of Forensic Science (1948) publishes; American Journal of Forensic Science
- Canadian Society of Forensic Science (1953) publishers of Journal of the Canadian Society of Forensic Science
- British Academy of Forensic Science (1960) publishers of Medicinal Science and Law
- Australian Academy of Forensic Sciences (1967) Publishers of Australian Journal of Forensic Science.

As Anatomists, our interest should be in the areas of;

- Forensic Anthropology – Application of physical anthropometry in a legal setting, usually for the recovery and identification of skeletonized human remains
- Forensic dactyloscopy – The study of finger prints
- Forensic DNA analysis – Uniqueness of individuals DNA answers questions such as paternity/maternity, and tracing a suspect at a crime scene. e.g. Rape investigations
- Forensic Podiatry – Application of the study of feet foot prints or footwear and their traces to analyze the scene of the crime and to establish personal identity in Forensic Examination
- Others include Forensic facial reconstruction and Forensic photography.

In my opinion and of interest to me, the Anatomist should be highly involved in Forensic Anthropology, which is the application of anthropology in legal setting. A Forensic anthropological technique is used in the recovery and analysis of human remains. It assesses the age, sex, stature, ancestry and an evidence for an estimate of the predominant geographic ancestry of the individual, as well as determine if the individual was affected by accidental or violent trauma or disease prior to the time of death.

In almost all the countries, Forensic Anthropology is still a growing field and still lacks uniformity, but the pioneers are osteologists.

## EMERGING CHALLENGES IN NIGERIA

As at now Nigerians does not have any Association or Academy of Forensic Scientists and so most forensic analysis is either determined haphazardly or sent abroad for analysis.

The law enforcement agents, most times, do not know who to approach for solutions with the result that

everything is referred to the Pathologists. Our pathologist must make bold to say that they do not have it all. Forensic Science involves a lot of experts including, but not limited to Pathologist, Osteologist, Odontologist, Biochemist, Biologist, Criminologist, Chemist, Geologist, Entomologists etc.

These experts must come together to pioneer the creation of an association or an academy. The postgraduate medical colleges may pioneer this move and also encourage the teaching of forensic science.

Just recently the Ibadan Forest of Horror was discovered, and prior to that was the Okija Shrine. The NATION of 08/04/2014 carried a news item of the visit of Forensic experts to the site, and the experts included a Pathologist from the UCH, Ibadan and other law enforcement agents. I have my doubt if forensic justice will be done on that site because even that of Okija shrine was never conclusive. The Police in Nigeria has a huge list of missing persons which is unresolved and one wonders if some of the victims of these shrines are not in that list.

The social ills of Ritual killings, Kidnapping, Militancy, Boko Haram etc., lead to the disappearance of humans. These ills are rampant in our Country Nigeria and definitely will result in situations where human parts will need to be identified by Forensic Experts. The question is, are we ready as experts for these impending problems?

Forensic experts are expected to assist the law enforcement agents to ravel the mysteries that surround civil and criminal offenses so that proper and accurate judgments can be made. Forensic Science is used by even humanitarian workers like in the Red Cross to clarify the fate of missing persons after armed conflict. An NGO, Argentine Forensic Anthropology Team, is working to clarify the fate of people who disappeared during the period 1978–1983 Military dictatorship. The International Commission on Missing Persons uses forensic science to find missing persons, for example, after conflicts in the Balkans. (Refs)

To be properly equipped for these institutions elsewhere, have established schools and centers for training of forensic science experts. Some schools readily come to mind.

## IN EUROPE

- Center for the Forensic Sciences of the University College London (United Kingdom)
- School for Forensic and Investigative Science of the University of Central Lancashire (UK)
- School of Criminal Justice (Ecole des Sciences Criminelles) University of Lansanne, (Switzerland).

## IN NORTH AMERICA

Forensic Science program at the Pennsylvania state University (United States). There is none of such schools in Nigeria and Africa as a whole. This is one of the existing Forensic challenges.

## OUR MODEST ATTEMPTS AS ANATOMIST

Over the years, as an Anatomist, in Nigeria I have taken part and also seen many works and researches by us, in the field of anthropometry that can qualify us as Forensic Scientists. Our different contributions can qualify us

to adopt the term “Forensic Anthropometrics. These works are in the areas of Somatometry, Cephalometry, Craniometry and Osteometry.

Somatometry - involves measurement in the living body and cadaver. It measures variability in human biology and has a comparative focus in variations within and among populations. These measurements could be used to estimate Age and Stature.

Osteometry - is the measurement of skeletal (bone) parts. This technique has been used variously to estimate stature, sex, race and age which are the “big four” of forensic anthropology. Various studies have been conducted, and many are in progress in many of our departments.

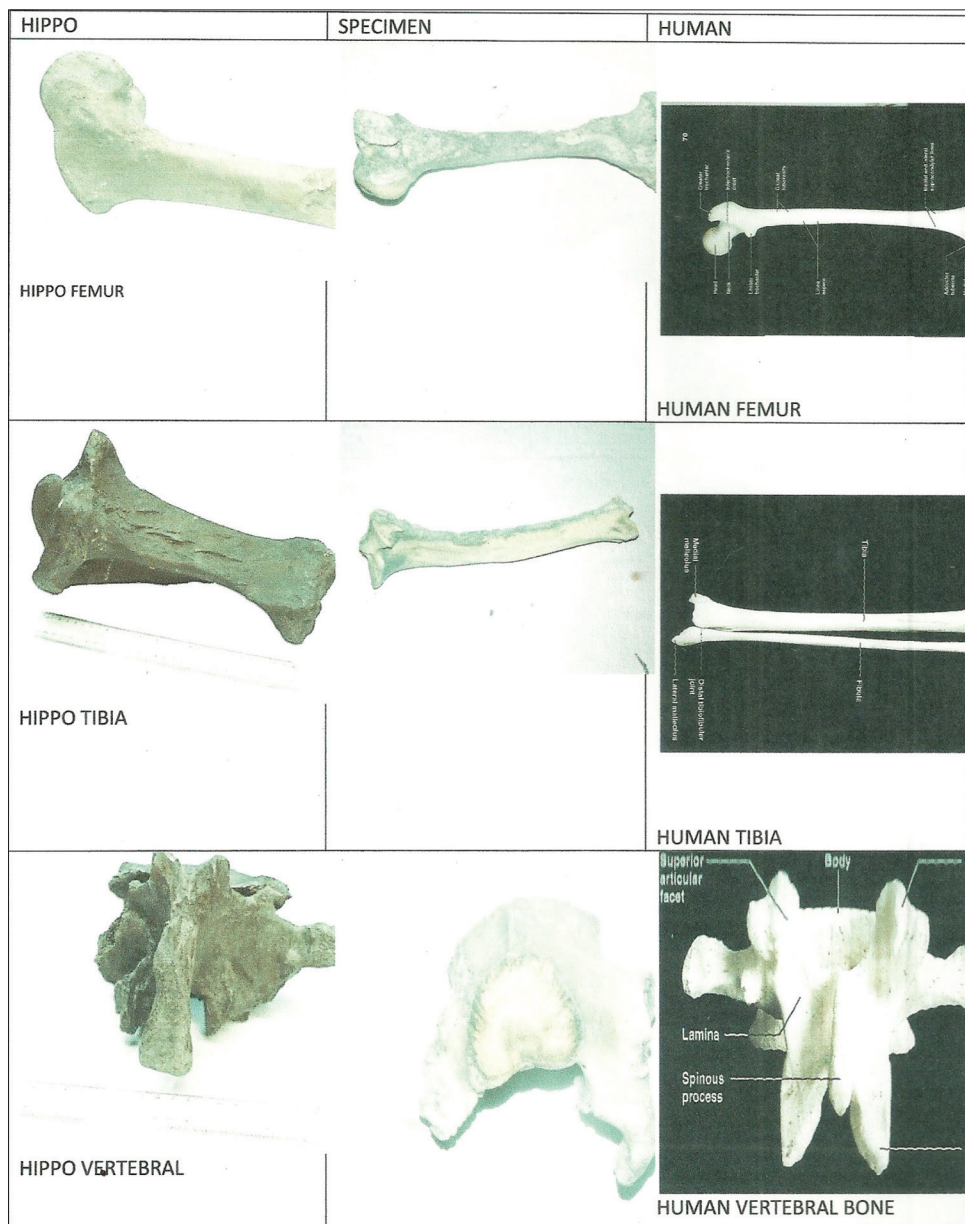


Figure 1: Bone of specimen (middle) compared to hippopotamus and man

For example;

- Didia *et al.* have used the tibia length to determine a formula for the estimation of stature of Nigerians
- Asala used femur head to determine the sex in South African whites and blacks from the Raymond Dart collection, etc
- Igbigi and Didia have so many published works on dermatoglyphics just as Oladipo *et al.* have worked extensively on facial dimensions of Nigerians.

Osteological examination of the pelvis and cranium can provide clues of ancestry and sex. Suffice it to say that both Nigerian and other international journals are replete with works of Nigerian Human Anatomists which point to the fact that we have in a way perfected our methodology which however have not been applied to forensic investigations because of the absence of the Academy of forensic science in Nigeria and which can also be blamed on the nonawareness of the authorities of the immense benefit forensic science can bring to our legal matters.

I will share one experience with you. In recent times, an Oil company had lost some body at sea, and a year later they picked up some bones at the same area of the sea which they assumed must belong to a lost man. They crated the bones for delivery to the family of the dead man for burial. On a second thought, however, the Medical personnel amongst them convinced them to first show the bones to me for identification. Working in our Anatomy laboratory with other members of staff, we identified those bones to be that of a Hippopotamus [Figure 1].

## RECOMENDATIONS

- Forensic anthropological techniques can be used in the recovery and analysis of human remains, and we must, as a matter of urgency bring this awareness to the adequate Nigerian authority for necessary action
- Forensic Science is a multidisciplinary thing, and so the Academy is required for the management and application of the science
- A center for the study of Forensic science should urgently be established in Nigeria.

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