Analele Universităţii din Oradea, Fascicula: Ecotoxicologie, Zootehnie şi Tehnologii de Industrie AlimntarăVol. XIV B, 2015

ENVIRONMENTAL FACTORS THAT INFLUENCE FORENSIC ANTHROPOLOGICAL IDENTIFICATION

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Abstract

The environmental factors have a major importance, in these quick and essential identification methods, because they can change the aspect quickly and essentially. This paper highlights this aspects, and is a reminder of the importance of the study of the factors of the medium on the decomposition of the body.

Key words: forensic anthropology, osteology, unknown bodies, non-scientific identification method, human remains**.**

INTRODUCTION

Forensic anthropology is the application of physical (biological) anthropology for legal purposes. Its field of study is anatomy and osteology (skeletal biology), it strictly deals with human remains and bones and uses techniques only related to these two.

MATERIAL AND METHOD

It is an interdisciplinary study involving osteologists, forensic pathologists and homicide investigators in order to determine *sex, gender, stature, age, and even the circumstances of death* (ABFA website 2007) of individual victims as well as victims of genocides and mass disasters. The collected data from the analysis is then used in trials and other legal proceedings. Forensic anthropology is very often the last resort in identifying unknown bodies. [1]

The activity of a forensic anthropologist includes:

a. Assistance at the crime scene by collecting human remains
b. Clean-up of the bones so that they may be looked at
c. Analyze of skeletal remains to establish the profile of the individual

d. Look for a trauma evidence on the bones to establish the pathway of a bullet or the number of stab wounds
e. Work with a forensic odontologist (dentist) to match dental records
f. Testify in court on the identity of the individual and/or the injuries that might be evident in the skeleton

RESULTS AND DISSCUSIONS

Positive comparative radiography

a. Bone morphology- skull features

Bones have proved to be an extraordinary source of information for the trained eye. Forensic anthropologists apply scientific techniques used by physical anthropologists. Measurement techniques of the skull have been developed for all ages and race groups. Every race group presents special characteristics of the skull e.g. the jaw length and distance between the eye sockets. Other features on the bone, like thickness, scratches and muscle attachments can reveal e.g the gender, age and size. The bones may also indicate the profession the person had, e.g. a bony ridge on the wrist can indicate that the person was working hard with his hands. Skeletal anomalies, dental features, surgical features are examples of other areas of interest the anthropologists look into.[2]

b. Bertillon method

The Bertillon method [3] is based on the anthropometric technique /photography (mug shot); measurements and recording of different parts and components of the human body as well as documentation of individual markings like tattoos, scars which were well used in former days, especially in crime cases. The measurements were summarized in a formula which would not change and would be used only for one person. This method has been replaced by fingerprinting and its theory and applications have merged into modern forensic identification methods. It is still applied in situations where mug shot are used in police investigations.

Presumptive method

Facial reconstruction is a traditional and non-scientific identification method used since the 19th century. It is a recognized and invaluable method in modern forensic anthropology for legal and human reasons when no other method is possible in order to identify skeletal remains of unknown individuals.[4]

There are different sculpturing techniques to reconstruct a face on the skull, but all of them are based on the study of the thickness of the soft tissue of different anatomical sites of the skull and jaw in different races and groups of races. The measurement of the thickness is followed by duplication with

modeling clay. Males and females of different races present different thickness of the soft tissue. (Phillips and Smuts 1996; Rhine and Campbell 1980; Rhine, Moore, and Weston 1982; Suzuki 1948). [5]
The facial reconstruction technique requires a fine balance between science and art. This traditional technique is now facing new actors, as e.g. high technology imaging workstations and biomedical software making it possible to produce spiral computed tomography and 3-dimensional reconstructions. [6]

CONCLUSIONS

Forensic identification is one of the juridical and legal problems that occur more and more frequently in the field of forensic pathology and criminology. Beside the modern DNA techniques, the classic and on-the-place methods are quick and have a rapidity that helps the work of the police and prosecutors giving them clues and starts. That is why these methods used in identification are still and will be still in use. In these quick and essential identification methods, the environmental factors have a major importance, because they can change the aspect quickly and essentially. This paper highlights this aspects, and is a reminder of the importance of the study of the factors of the medium on the decomposition of the body.

REFERENCES

1. *Bertillon method*, New Zeeland Police Museumhttps://sites.google.com/site/newzealandpolicemuseum/hom e/online-exhibitions/mug-shots/beyondmugshots/Bertillon
2. Bruce Budowle A Perspective on Errors, Bias, and Interpretation in the Forensic Sciences and Direction for Continuing Advancement J Forensic Sci, July 2009, Vol. 54, No. 4 doi: 10.1111/j.1556-4029.2009.01081.x
3. Dix J and Graham M. *Positive Identification* Time of Death, Decomposition and Identification: An Atlas Dec 7. 1999. p 76
4. Eckert W. G *Introduction to Forensic Sciences, Second Edition. 1992 p.302http://books.google.se/books?id=n_sqBeGvb2sC&pg=PA301&lpg=PA301&dq=visual+recognition+in+forensic+sciences&source=bl&ots=cRnwL5zTbj&sig=ShJLIXMei7_WrMFYay6dhA34kg&hl=en&sa=X&ei=hTIiU5uuGaX8ygO68YHYCA&ved=0CF8Q6AEwCQ#v=onepage&q=uniquness&f=false*
5. Heather Walsh-Haney. *Skeleton Keys: How Forensic Anthropologists Identify Victims and Solve crimes*, Science Magazine 2002, June 7
6. Phillips V.M. Skeletal Remains Identification by Facial Reconstruction, Forensic Science Communications. January 2001 – Vol. 3. No1
7. *Personal Identification* Scientific Working Group for Forensic Anthropology (SWGANTH) *Personal Identification* Issue http://swganth.startlogic.com/Identification%20Rev0.pdf

8. Recheis W et al. *New methods and techniques in anthropology.* Coll Antropol. 1999 Dec; 23(2):495-509. PubMed PMID: 10646224.
9. Simpson E.K and Byard R.W (2008) *Visual identification*. Forensic pathology Reviews 5, Michael Tsokos, p 191 *[http://books.google.se/books?id=_qO9S3EO7FMC&pg=PA190&lpg=PA190&dq=visual+identification+forensics&source=bl&ots=qRtmGxEzL5&sig=Zns_2xd1y4Rda6s-iGsZNfcmtKc&hl=en&sa=X&ei=MWogU#v=onepage&q=visual%20identification%20forensics&f=false*
10. Simpson E.K and Byard R.W (2008) *Visual identification*. Forensic pathology Reviews 5, Michael Tsokos, p 190
11. Nevall G. Forensic Anthropology, Indiana University 2007
12. www.sanatatea.com/.../**mediu**/1401-**factorii-de-mediu**-
13. www.legmed.ro/doc/04-tanatologie.pdf
14. www.cursurimedicina.ro/files/Carte%20ML.pdf