NEW COMPUTER PROGRAM "FACE-ON-FACE" AS A NEW PRACTICAL ANTHROPOLOGICAL VIRTUAL INSTRUMENT

Maurer Andrey[1], Savinetsky Alexandr[2], Syroezhkin German[2]

[1]*Research Institute and Museum of Anthropology, Lomonosov Moscow State University, Moscow, Russia*
[2]*National Research Nuclear University (NRNU MEPHI), Moscow, Russia*

The program Face-on-Face was developed for optimization of creating of composite portraits (CP) (of the face and body) according to F. Galton by means of new digital images. Composite portrait is a kind of cognitive tool that allows visualizing the integrated variability of morphological characteristics of the human face – in sex, age, race (ethno-territorial) aspects. An algorithm of creating portraits consists of the following: first, the average interpupillary distance for the entire sample (in pixels) is calculated, then all of the individual images are restricted (reduced or increased, respectively) to found the average interpupillary distance and simultaneously stretch or shorten in height, reaching the average distance between an oral point and a horizontal line passing through the pupils. These transformed images are sequentially superimposed on each other. Color of a pixel at each point is the average of all pixels of the points with all the images. The sequence of the overlay does not affect the final image. Due to the transformation of each image into a mathematical model the combining process is fast enough. Therefore, CP could be created for 10–15 minutes depending on the image resolution. A tool "ruler" allows to take measurements relying on the bar existing in the frame scale. The distance in pixels is converted to millimeters. Tool "symmetry" allows to slice an image of the face (or of the body) by sagittal line and then to "glue" the halves – left with left, right with right. The experience of creating of CP relying on three points in the three classic standards – "full face", "3/4", and "profile", yielded unique CPs of Russian Altai children, some of the peoples of northern Eurasia, Negroid of East Africa, etc. We received an interesting result of CP generated with 27 base points. The developed model can be used by researchers, museum staff, forensic experts and other specialists.

Key words: *anthropological photography, composite portrait, computer software, appearance features, visualization*

Contact information: e-mail: Maurer Andrey, e-mail: foto-rer@yandex.ru.

IDENTIFICATION FROM HUMAN BITE MARKS: AN EXPERIMENTAL STUDY

Meşe Cansev[1], Güngör Kahraman[2], Özer Başak Koca[1]

[1]*Ankara University, Faculty of Languages, History and Geography, Department of Anthropology, Turkey*
[2]*Gazi University, Faculty Dentistry, Department of Oral and Maxillofacial Radiology, Turkey*

Identification from human bite marks is one of the major issues which forensic sciences - forensic anthropology and forensic dentistry - are interested in. According to the American Board of Forensic Odontology (ABFO), standard studies include: tooth structure of suspects, collecting information if there is any possibility to reach DNA, taking photo of bite marks, creation of dental model of the suspect and applying methods for the bite marks analysis. The purpose of the present experimental study is to investigate the bite marks on various materials created by adult volunteers, stating if the elimination or the prevision of suspects can be made or not. A total of 20 adult volunteers (10 from each sex, aged between 20–45 years) were asked to bite styrofoam, apple, cucumber, cheddar cheese, transparency, and their upper arm (biceps). According to the ABFO standards, the photographs were taken showing the intraoral structure and bite marks from various materials, and the dental plaster models were created and scanned. Transparent coating was applied using Adobe Photoshop CS4 Extended software, and comparisons were made. According to the results, comparison between transparent coatings obtained from dental plaster models and bite mark materials of styrofoam (75% of accuracy/true match on the both upper and lower jaws), cheddar

cheese (85% of accuracy/true match on the upper jaw) and the upper arm (65% of accuracy/true match on the upper jaw and 70% of accuracy/true match on the lower jaw) bite marks are much more accurate than the bites marks on apple, cucumber and acetate material. We are in the opinion that experimental studies on bite marks have an important contribution to the forensic sciences and crime investigations, and future studies are needed.

Key words: *forensic anthropology, forensic dentistry, bite marks, Turkey*

Contact information: Meşe Cansev, e-mail: cansevmese@windowslive.com,
Güngör Kahraman, e-mail: kahraman@gazi.edu.tr,
Özer Başak Koca, e-mail: bkozer@ankara.edu.tr.

RELATIONSHIP BETWEEN OBESITY AND ARTERIAL STIFFNESS IN CHILDHOOD WITH FATHER'S SMOKING DURING PREGNANCY

Mora-Urda Ana Isabel, Montero Pilar

Physical Anthropology, Biology Department, Universidad Autónoma de Madrid, Madrid, Spain

Studies about children health have historically considered aspects related to mothers' health and mothers' behaviors as determinants of optimal fetal development and subsequent health of children, however, there is little information about the influence of the fathers behaviors. The aim of this study is to analyze the relationship between father's smoking during pregnancy with obesity and arterial stiffness in children. The sample consisted of 300 children (8 to 12 years old) and their fathers and mothers. Data were collected in public schools in the Community of Madrid. Following the collection of data from children their families were interviewed about the smoking patterns of both fathers and mothers during pregnancy. At the beginning of the pregnancy 16.7% of smoking mothers stopped smoking. Women who maintained smoking during pregnancy significantly decreased the number of cigarettes/day (14.23 cigarettes/day before pregnancy and 7.07 cigarettes/day during pregnancy). However, the percentage of fathers who stopped smoking was very small (5.3%). Fathers' smoking during pregnancy was associated with higher body mass index ($p = 0.031$), greater waist circumference ($p = 0.012$) and higher waist/ height index (0.001) in daughters but not necessarily in sons. Likewise the number of cigarettes consumed per day by the father during pregnancy affects the pulse wave velocity (PWV), an indicator of arterial wall stiffness ($p = 0.028$). Daughters of non-smoking mothers during pregnancy but who were exposed during fetal life to paternal smoking, presented highest values of visceral obesity and arterial stiffness (PWV) in childhood. The results obtained in this study highlight the importance of fathers' behavior on the health of children.

Key words: *father's smoking, obesity, arterial stiffness, children*

Contact information: Mora-Urda Ana Isabel, e-mail: anabelmoraurda@hotmail.com,
Montero Pilar, e-mail: pilar.montero@uam.es.

FILIPPOVKA: SKULLS AND FACES. NOMADS OF THE SOUTH URALS IN THE EARLY IRON AGE ACCORDING TO ANTHROPOLOGICAL RECONSTRUCTIONS

Nechvaloda Alexey

Institute of History, Language and Literature, Ufa Scientific Centre of Russian Academy Sciences, Ufa, Russia

Early Iron Age is one of the spectacular periods in the ancient history of the Eurasian Steppe. Just in the center of the nomadic world, there is Filippovka kurgan cemetery, situated between Volga and Ural Rivers. Twenty-five kurgans are located on the left bank of the Ural River, 100 km to the west of the city of Orenburg.